ME

John R. McKernan, Jr.
Governor

C. Edwin Meadows, Jr.
Commissioner

DEPARTMENT OF CONSERVATION

December 9, 1991

James P. Linnane
Field Representative
Forest Pest Management
Forestry Sciences Laboratory
PO Box 640
Durham, NH 03824

Dear Jim:

Enclosed you will find the 1991 forest pest conditions summary sheets for Maine. Although a great deal of our time during the past season was spent on hemlock looper population assessment and forest health monitoring, the information on these sheets should reflect a good overview of all of our major pests for the season and some of the minor ones.

Although hemlock looper and gypsy moth "led the pack" as far as insect pests were concerned, weather related impacts to forest trees were certainly as striking. A warm period in April and early May forced trees into early development. A severe freeze on May 19-20 brought development abruptly to a halt in many areas of central and eastern Maine and although many trees recovered with little evidence of damage, beech and some oak suffered mortality. Not to be left out, western Maine (especially west of the Kennebec and Sebasticook River valleys) was "clobbered" by Hurricane "Bob" on August 19-20. Many trees, especially aspen, either broke or blew over due to high winds and over seven inches of soaking rain.

Many other pests came to our attention which were serious but very local in nature. Those not covered in these sheets will be summarized in our annual Summary Report of Forest Pest Conditions which should be available after the first of the year. Should you have need of more information on any of these, give me a call.

Sincerely,

David Struble
State Entomologist

DS:bab
Enclosures

ME

MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Alder

Damage/Pest:

Common Name: Alder Flea Beetle

Scientific Name: Altica ambiens alni

Survey:

Method(s) Used: Visual

Total Area Surveyed: Southern half of the State

Present Condition:

Area (total acres): N/A

Location (indicate on map): Southern half of the State

Severity (include areas of moderate and heavy defoliation or infection; define classes): Extremely high populations. Larvae in some areas were so abundant that when they ran out of food they wandered in mass into buildings. Defoliation was total in some alder thickets.

Losses (include areas of tree mortality; also volume and/or $ estimates): Some alder will likely die as a result of heavy feeding as they often do in such situations.

Trend:

Past to Present: Up in many areas

Future: Expected to remain high for at least another year in some areas.

Control Projects (method, material, acres, cost, results): Only a few homeowner nuisance control projects.

Comments:

ME

MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Northern White Cedar - Thuja occidentalis

Spruce/Fir

Damage/Pest: Leaf mining

Common Name: Arborvitae Leaf Miner

Scientific Name: Argyresthia thuiella; A.freyella; A. Aureoargentella; and Recurvaria thujaella.

Survey:

Method(s) Used: Dissection of 20 3" tips from each of 5 trees. Identification and numbers are recorded of each species of larvae found.

Total Area Surveyed: 200,000 + acres

Present Condition:

Area (total acres): Unknown

Location (indicate on map): Central, Eastern, & Northern Maine

Severity (include areas of moderate and heavy defoliation or infection; define classes): Populations generally declined in the 1991 survey.

Losses (include areas of tree mortality; also volume and/or $ estimates): No data taken to estimate loss. Growth losses are apparent in many areas. Species is underutilized in the State.

Trend:

Past to Present: Populations vary upward & downward in succesive years.

Future: Situation will remain as in the past, variable.

Control Projects (method, material, acres, cost, results): None planned.

Comments: As the species increases in value, an increased emphasis must be placed on this pest due to the heavy growth loss and potential tree mortality.

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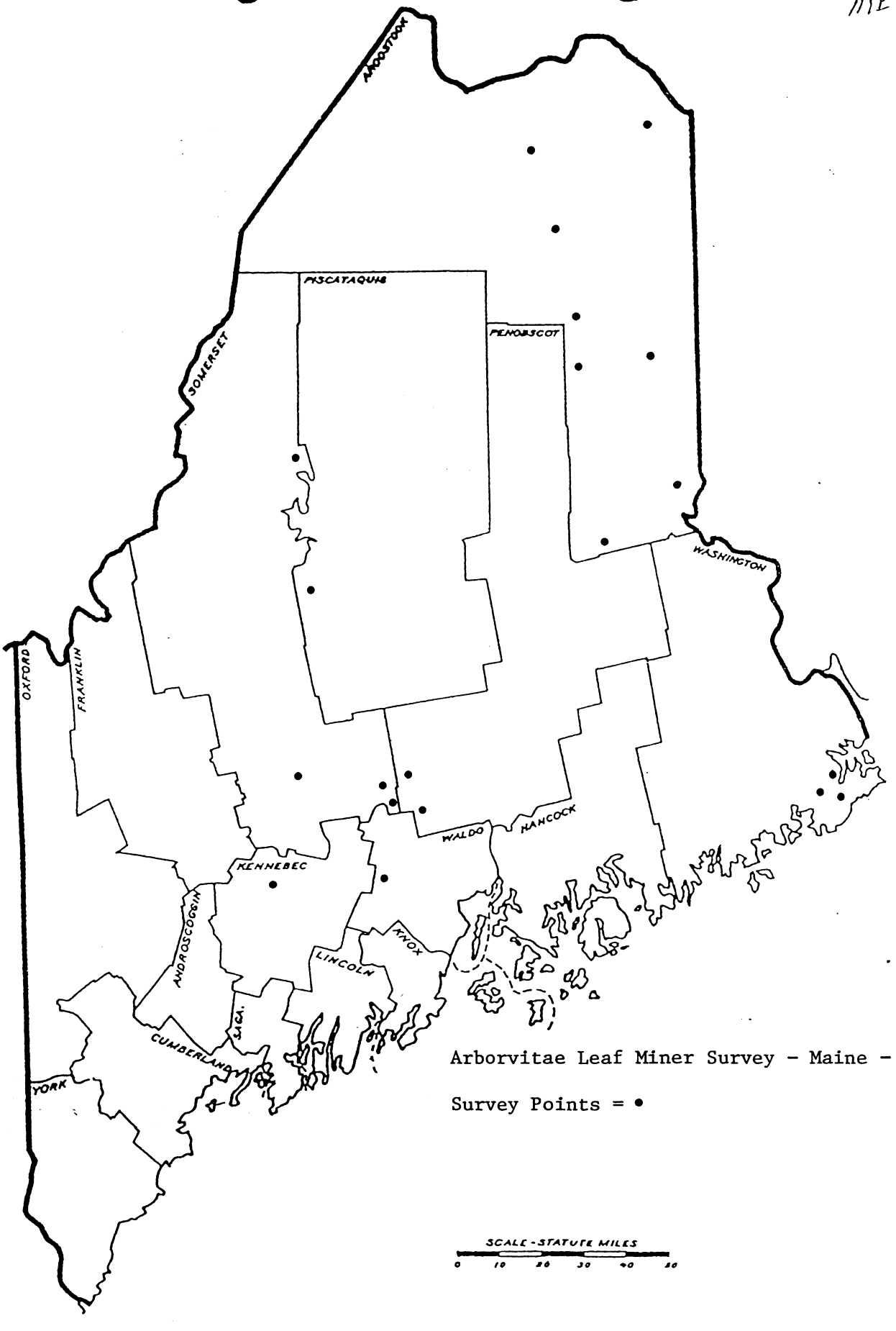

Arborvitae Leaf Miner Survey - Maine - 1991

Survey Points = •

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1991 Arborvitae Leaf Miner Summary

Location	# of Live Larvae Per 3" Twig-1991	# of Live Larvae Per 3" Twig-1990	Increase Decrease
Palmyra	0.48	2.65	-2.17
Belgrade	1.06	2.09	-1.03
Plymouth/Dixmont	1.00	2.39	-1.39
Cornville	1.27	3.25	-1.98
Newport	0.20	2.87	-2.67
Freedom	0.48	1.72	-1.24
Detroit	2.18	3.66	-1.48
Whiting	1.07	1.67	-0.60
Trescott	1.65	1.71	-0.06
Edmunds	1.08	2.41	-1.33
Ludlow	1.05	1.04	+0.01
Moro	0.60	0.96	-0.36
Nashville	0.28	0.25	+0.03
Connor	0.37	0.47	-0.10
T9-R5	0.22	0.17	+0.05
Winterville	0.42	0.45	-0.03
Orient	0.61	1.53	-0.92
Macwahoc	0.40	1.57	-1.17
Little Squaw	0.44	0.32	+0.12
Seboomook	0.13	0.05	+0.08

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MAINE
1991 PEST CONDITIONS REPORT WORK SHEET

Host Tree(s) (including forest type): Balsam Fir - Christmas Tree Plantations

Damage/Pest:

Common Name: Balsam Gall Midge

Scientific Name: Paradiplosis tumifex Gagne

Survey:

Method(s) Used: Random Ocular checks

Total Area Surveyed: 12,000 acres

Present Condition:

Area (total Acres): 1,000 acres

Location: Statewide

Severity (include areas of moderate and heavy defoliation or infection; define classes): Approximately 200 acres are known to have required control in 1991.

Losses (include areas of tree mortality; also volume and/or $ estimates): Needle loss causes trees to be unmarketable, but control programs have prevented most losses.

Trend:

Past to Present: Midge levels vary within plantations but remain stable statewide.

Future: Populations are expected to decrease.

Control Projects - (method, material, acres, cost, results):

Comments: Diazinon and Lorsban were used on an unknown acreage. Costs are approx. $4.00 per acre chemicals and $15.00 plus for application.

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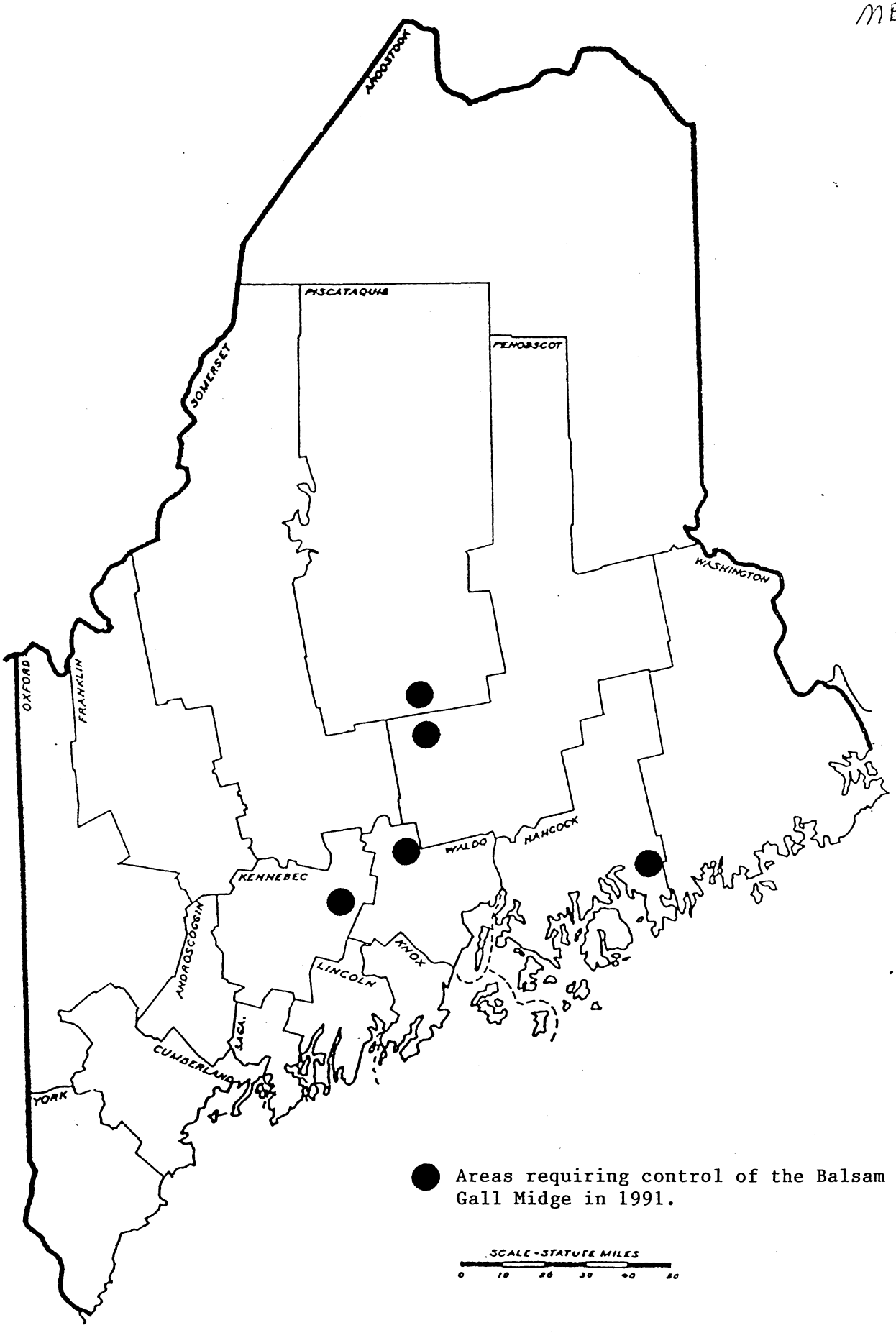

● Areas requiring control of the Balsam Gall Midge in 1991.

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MAINE
1991 PEST CONDITIONS REPORT WORK SHEET

Host Tree(s) (including forest type): Balsam Fir - Christmas Tree Plantations

Damage/Pest:

Common Name: Balsam Twig Aphid

Scientific Name: Mindarus abietinus (Koch)

Survey:

Method(s) Used: Random ocular checks

Total Area Surveyed: 12,000 acres

Present Condition:

Area (total Acres): 4,000 acres (reported by landowners and observed by staff)

Location: Statewide

Severity (include areas of moderate and heavy defoliation or infection; define classes): 500 acres one or more stem mother per tip

Losses (include areas of tree mortality; also volume and/or $ estimates): Tree mortality does not occur; losses result from reduction in quality of Christmas trees and wreath brush.

Trend:

Past to Present: Aphid populations have remained high over the last three years.

Future: Stable at high levels

Control Projects - (method, material, acres, cost, results):

Comments: Projects were conducted on a high number of plantations in 1991. Diazinon is the most commonly used pesticide. Acreage is unavailable. Cost vary, pesticide cost approx. $4.00 per acre application $15.00+ per acre.

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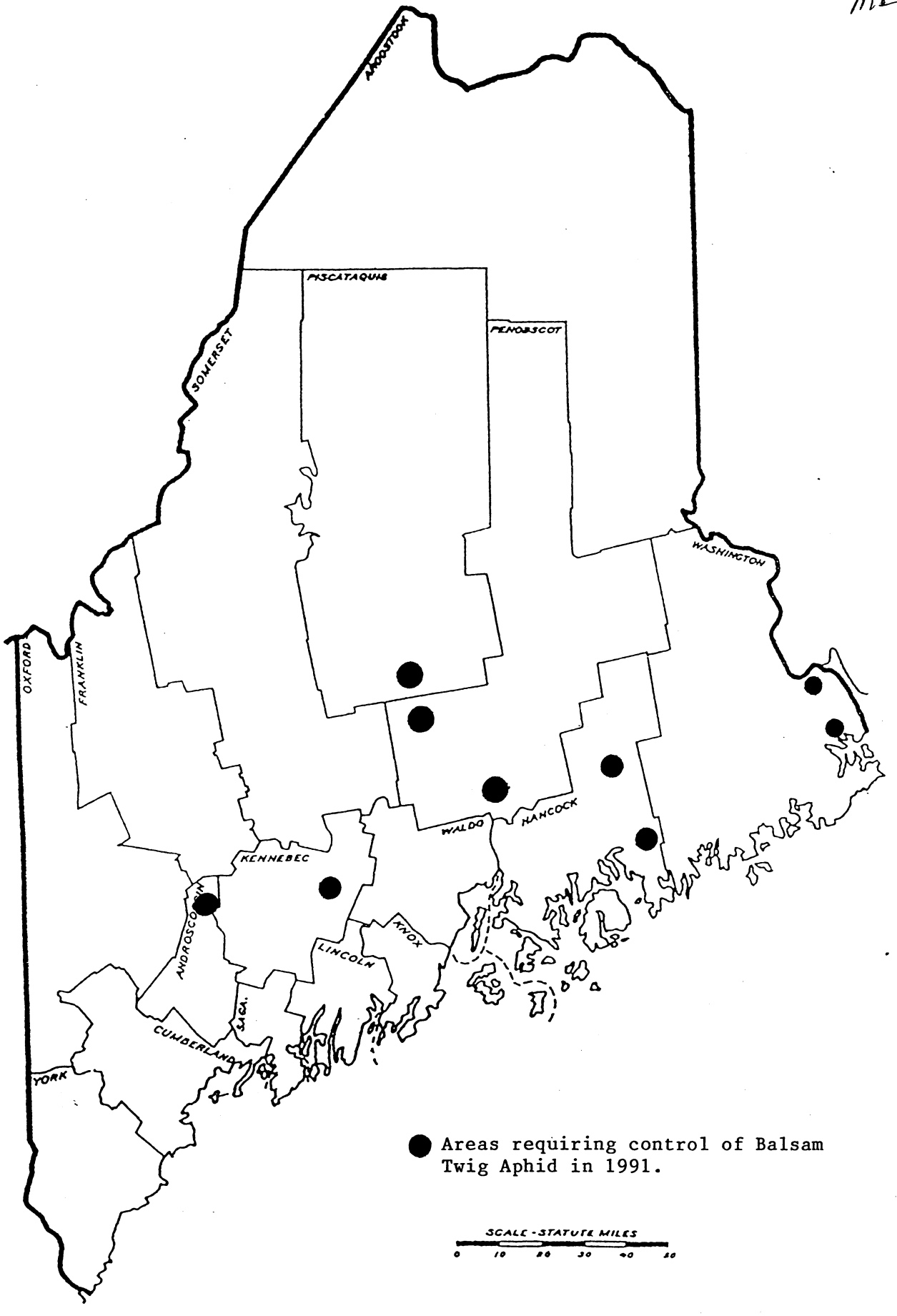

● Areas requiring control of Balsam Twig Aphid in 1991.

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MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Balsam Fir (Spruce/Fir)

Damage/Pest:

Common Name: Balsam Woolly Adelgid

Scientific Name: Adelges piceae

Survey:

Method(s) Used: Visual road survey with occasional spot checks

Total Area Surveyed: Eastern Coastal Maine

Present Condition:

Area (total acres): N/A

Location (indicate on map): Southern half of Maine

Severity (include areas of moderate and heavy defoliation or infection; define classes): The gout phase appears to be predominant in southern Maine. Scattered areas exhibiting light to moderate trunk phase occur in central Penobscot and Southern Piscataquis Counties.

Losses (include areas of tree mortality; also volume and/or $ estimates): No figures are available but losses may be fairly high

Trend:

Past to Present: Populations appear to have dropped in 1991 possibly in part due to changes in the status of fir stocking.

Future: Not known

Control Projects (method, material, acres, cost, results): None

Comments:

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MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Beech (Northern Hardwoods)

Damage/Pest:

Common Name: Beech Bark Disease

Scientific Name: Cryptococcus fagisuga/Nectria coccinea var. faginata

Survey:

Method(s) Used: Visual (aerial & ground) with occasional spot checks

Total Area Surveyed: Central and eastern Maine

Present Condition:

Area (total acres): N/A (possibly 1,000,000 acres more or less)

Location (indicate on map): Central and eastern Maine

Severity (include areas of moderate and heavy defoliation or infection; define classes): Beech in the area surveyed exhibited heavy mortality and dieback as a result of stress from Beech Bark Disease complicated by a severe freeze in mid May of 1991 and recent oyster shell scale and defoliator impact.

Losses (include areas of tree mortality; also volume and/or $ estimates): Losses are probably extremely high but are difficult to estimate. Beech is still not considered a high value crop tree by many landowners.

Trend:

Past to Present: Although rough-barked trees are evident nearly everywhere, populations of the scale and fungus seemed to be down in 1991. Active but spotty scale populations were reported from central Maine as far north as the Medway area. Actively fruiting Nectria was not easy to find in most areas.

Future: The problem is expected to continue in 1992 but long term predictions at this time are anybody's guess.

Control Projects (method, material, acres, cost, results): None

Comments: Although Beech Bark Disease occurs statewide, damage outside of the area mapped appeared to be either very light or inactive except for "hot spots."

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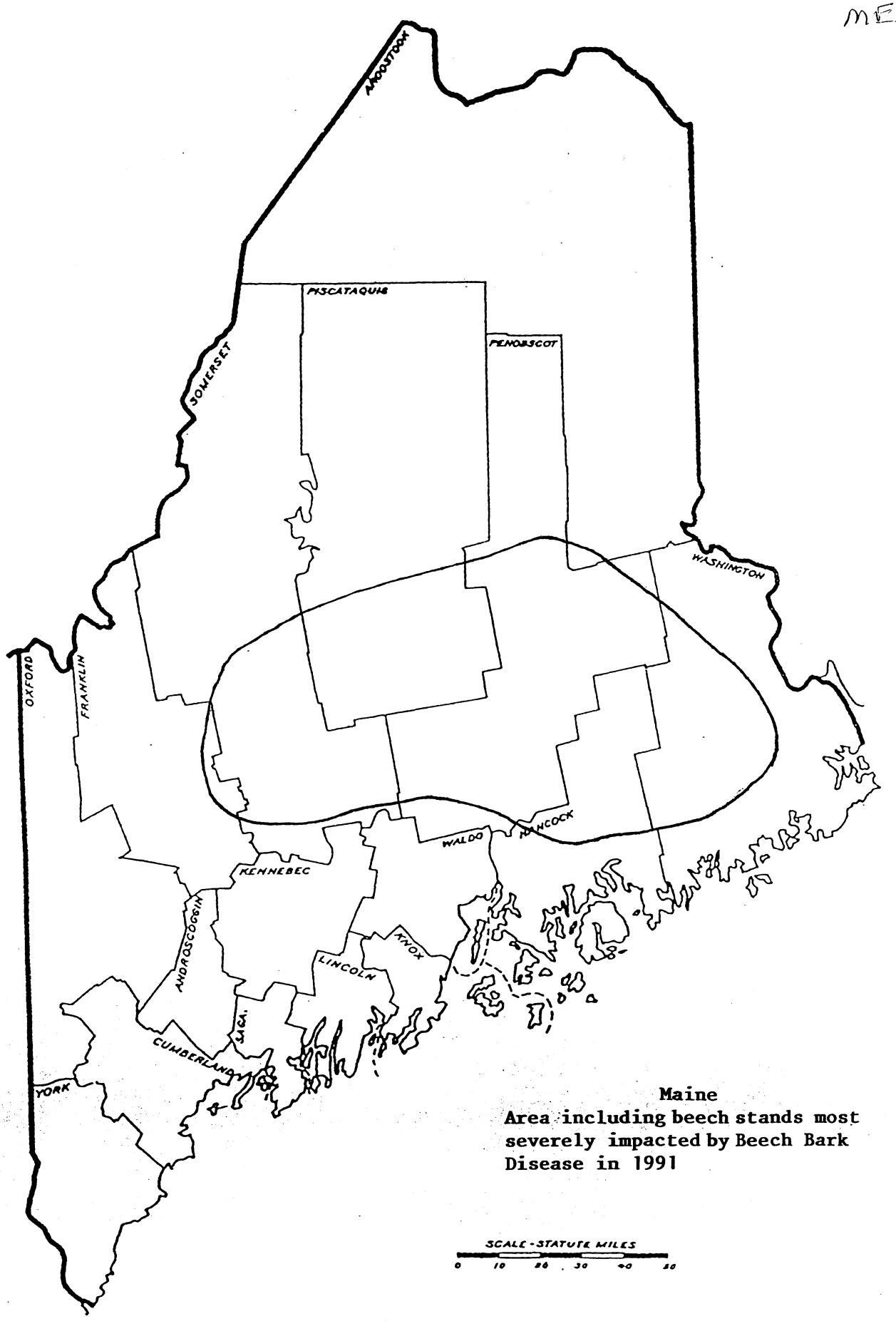

Maine
Area including beech stands most severely impacted by Beech Bark Disease in 1991

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1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Birch (Northern Hardwood and Aspen/ Birch)

Damage/Pest:

Common Name: Birch Casebearer

Scientific Name: Coleophora serratella

Survey:

Method(s) Used: Visual and spot check

Total Area Surveyed: 100,000 acres

Present Condition:

Area (total acres): 100,000 acres

Location (indicate on map): Central and Eastern Maine and near Rangeley

Severity (include areas of moderate and heavy defoliation or infection; define classes): Populations were higher than expected (moderate) in central and east coastal Maine but low in the Rangeley area. Populations were reportedly noticeable in areas of Aroostook County but were not surveyed.

Losses (include areas of tree mortality; also volume and/or $ estimates): N/A

Trend:

Past to Present: Populations appeared to be up in northern, central and eastern Maine but stable in the Rangeley area.

Future: Expected to move up generally statewide

Control Projects (method, material, acres, cost, results): None except possibly limited private

Comments:

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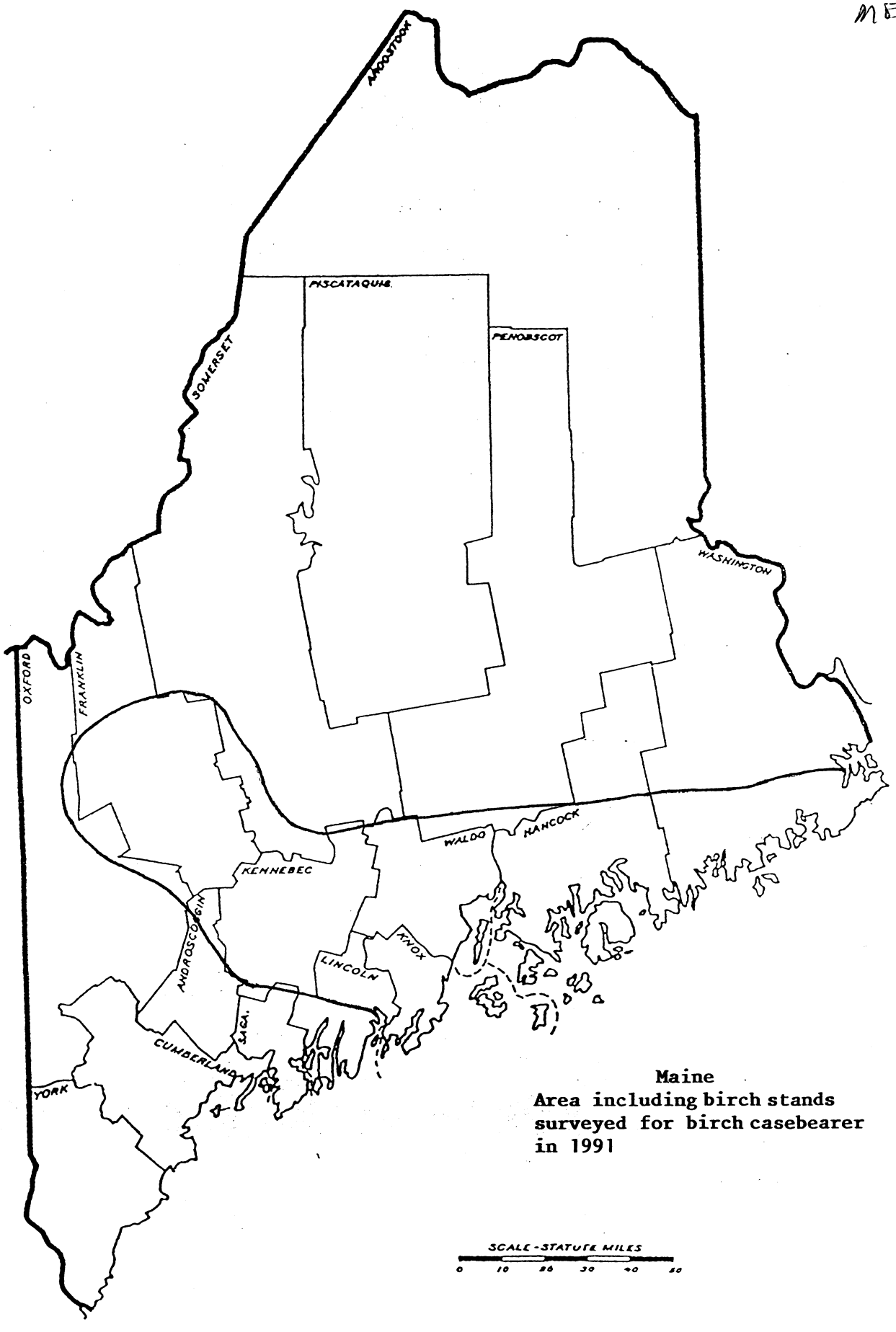

Maine
Area including birch stands surveyed for birch casebearer in 1991

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MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Birch (Northern Hardwoods, Birch/Aspen)

Damage/Pest:

Common Name: Birch Leafminer

Scientific Name: Messa nana

Survey:

Method(s) Used: Visual with spot checks

Total Area Surveyed: 121,000 acres

Present Condition:

Area (total acres): 121,000 acres

Location (indicate on map): Central and Eastern Maine with special emphasis in one continuous monitoring site in Dixmont/Newburgh

Severity (include areas of moderate and heavy defoliation or infection; define classes): Populations were locally high on white birch and white birch hybrids across central and east coastal Maine.

Losses (include areas of tree mortality; also volume and/or $ estimates): None evident

Trend:

Past to Present: Although population levels were similar to those experienced in 1990, some range extension of heavy defoliation (see map) was noted toward the east in Hancock and Washington Counties.

Future: Populations are expected to remain the same or move upward in 1992.

Control Projects (method, material, acres, cost, results): None

Comments:

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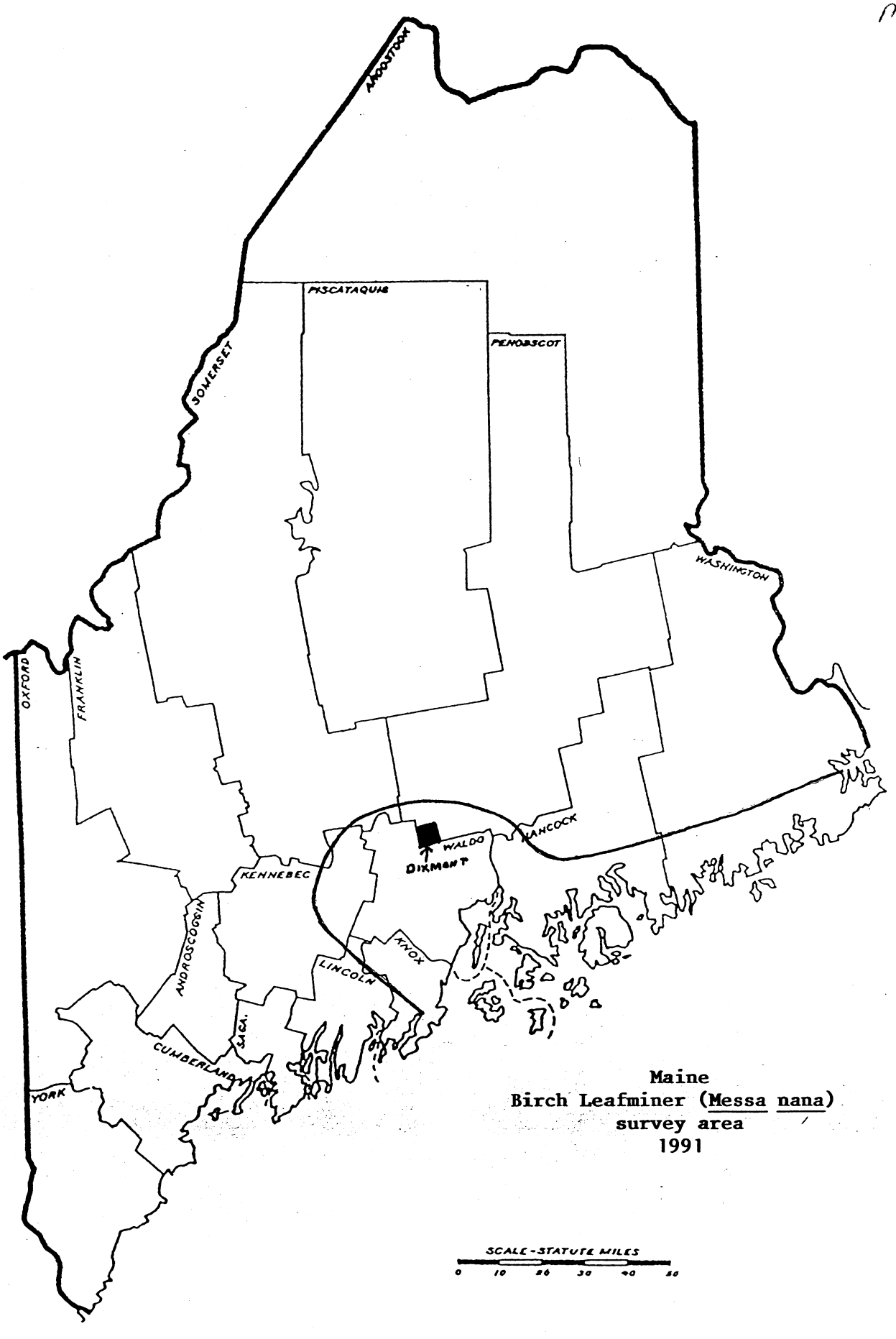

Maine
Birch Leafminer (Messa nana)
survey area
1991

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MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Birch (Northern Hardwoods, Birch/Aspen)

Damage/Pest:

Common Name: Birch Sawfly

Scientific Name: Arge pectoralis

Survey:

Method(s) Used: Visual

Total Area Surveyed: N/A

Present Condition:

Area (total acres): N/A

Location (indicate on map): West Central Penobscot

Severity (include areas of moderate and heavy defoliation or infection; define classes): Light to moderate on individual trees

Losses (include areas of tree mortality; also volume and/or $ estimates): None

Trend:

Past to Present: Down

Future: Expected to continue downward

Control Projects (method, material, acres, cost, results): None

Comments:

ME

MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Birch (Northern Hardwoods, Birch/ Aspen)

Damage/Pest:

Common Name: Birch Skeletonizer

Scientific Name: Bucculatrix canadensisella

Survey:

Method(s) Used: Visual with spot checks

Total Area Surveyed: 10,000 acres

Present Condition:

Area (total acres): 10,000 acres

Location (indicate on map): North central Oxford and south central Franklin Counties

Severity (include areas of moderate and heavy defoliation or infection; define classes): Moderate to severe late season defoliation most visible on high, heavily white birch sites.

Losses (include areas of tree mortality; also volume and/or $ estimates): None

Trend:

Past to Present: Up strikingly

Future: Expected to remain high for one more season with possible expansion northward.

Control Projects (method, material, acres, cost, results): None

Comments: Several areas of suspected defoliation by this pest in northern Maine were not checked in 1991.

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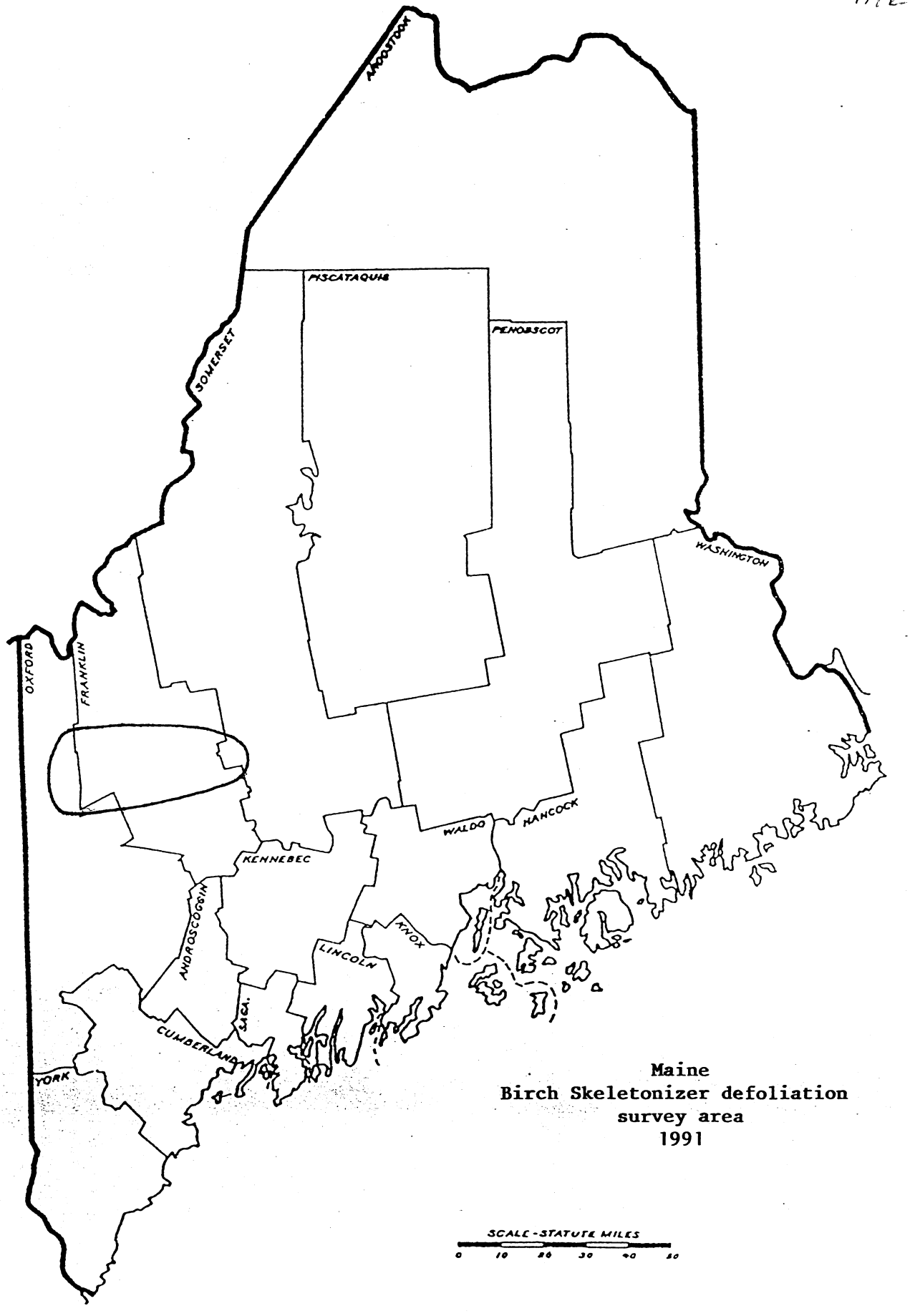

Maine
Birch Skeletonizer defoliation
survey area
1991

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1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Oak, Hawthorn, Amelanchier, Willow, Cherry, Rubus, & Roses.
ASpen/Birch & Oak/Pine

Damage/Pest: Defoliation and Skin irritant.

Common Name: Browntail Moth

Scientific Name: Euproctis chrysorrhoea

Survey:

Method(s) Used: Visual survey of suspected areas and clipping of webs.

Total Area Surveyed: 11 towns in Cumberland & Sagadahoc counties

Present Condition:

Area (total acres): 50+ acres known to be infested plus unknown areas on other islands and the mainland.

Location (indicate on map): Cumberland & Sagadahoc counties.

Severity (include areas of moderate and heavy defoliation or infection; define classes): 2 - 3 acres of heavy to severe defoliation on Long Island. Vail, House and Little Chebeague now generally infested. 7 towns found infested in 1991.

Losses (include areas of tree mortality; also volume and/or $ estimates): No tree mortality noted or expected.

Trend:

Past to Present: Area increasing. Other islands suspected of being infested as well as an increase on the mainland

Future: Futher expansion expected.

Control Projects (method, material, acres, cost, results): None, except the visual survey and clipping of webs found.

Comments: Need pheromone for a survey tool in order to further monitor this pest. Several calls were received in 1991 regarding the "rash" associated with this pest.

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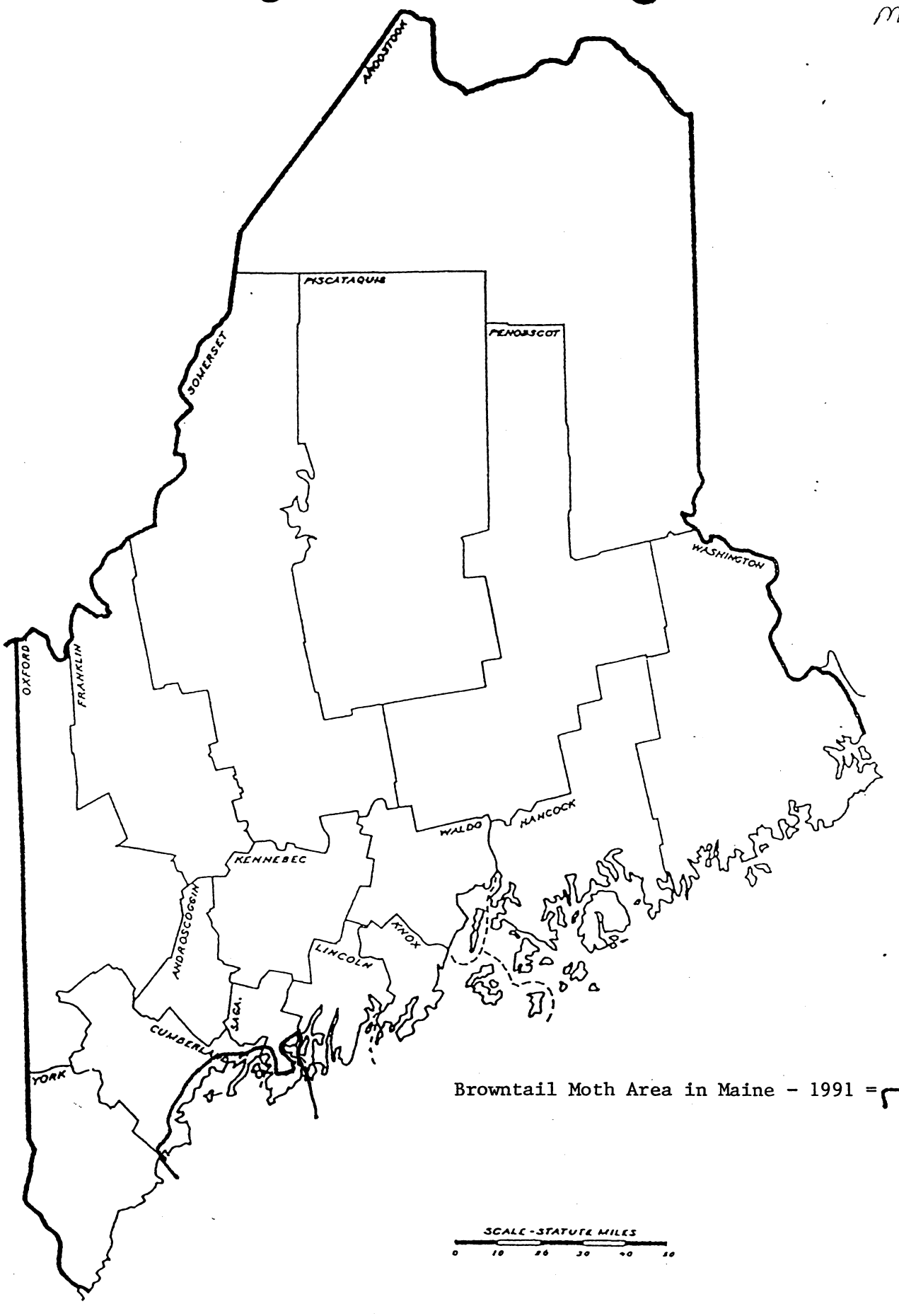

Browntail Moth Area in Maine - 1991 =

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Areas Scouted For Browntail Moth, Spring, 1991 and Results

Town	Location	Results
Georgetown	Reid State Park	0 Webs
"	Bay Point Area	0 Webs
Phippsburg	Small Point Area	0 Webs
"	Popham Beach Area	0 Webs
"	Hermit Island	1 Web
"	West Point	0 Webs
Harpswell	Cundy's Harbor Area	0 Webs
"	Basin Point	0 Webs
"	Ash Point	0 Webs
"	Pott's Point	13 Webs
"	Baileys Island	0 Webs
"	Orrs Island	0 Webs
Brunswick	Mere Point	0 Webs
"	Whartons Point	0 Webs
"	Jct. of Mere Pt. & Rossmore Rds.	0 Webs
Freeport	Stockbridge Pt.(Winslow Park)	0 Webs
"	Moore Pt. Area (Wolf's Neck)	0 Webs
"	Flying Point Area	0 Webs
"	Little Flying Point	0 Webs
Yarmouth	Cousins Island	2 Webs
"	Littlejohn Island	0 Webs
"	Parker Point	0 Webs
"	Sunset Point	0 Webs
Cumberland	Jct. of Rte 88 & Carriage Rd.	1 Web
Falmouth	Princes Point	0 Webs
"	Thornhurst Point	0 Webs
"	Mackworth Point	0 Webs
"	Mackworth Island	2 Webs
Portland	East End Area	0 Webs
Cape Elizabeth	Fort Williams Park	4 Webs
South Portland	Fort Preble (SMVTI)	4 Webs

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MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Northern Hardwoods but especially sugar maple

Damage/Pest:

Common Name: Bruce Spanworm

Scientific Name: Operophtera bruceata

Survey:

Method(s) Used: Visual with spot checks

Total Area Surveyed: N/A

Present Condition:

Area (total acres): N/A

Location (indicate on map): West central Maine

Severity (include areas of moderate and heavy defoliation or infection; define classes): No reports of detectable larval populations although moths were very common in some stands the previous fall (1990).

Losses (include areas of tree mortality; also volume and/or $ estimates): None

Trend:

Past to Present: Stable at low levels

Future: Expected to remain low

Control Projects (method, material, acres, cost, results): None

Comments:

ME

MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Conifers especially Spruce/Fir & Larch

Damage/Pest:

Common Name: Conifer sawflies

Scientific Name: Various

Survey:

Method(s) Used: Visual

Total Area Surveyed: Statewide

Present Condition:

Area (total acres): Statewide

Location (indicate on map): Statewide

Severity (include areas of moderate and heavy defoliation or infection; define classes): No reportable populations or damage except for one two acre stand of mature European larch defoliated by Larch Sawfly in Atkinson and a small stand of Jack pine in Steuben lightly defoliated by the Jack pine Sawfly.

Losses (include areas of tree mortality; also volume and/or $ estimates): None

Trend:

Past to Present: Low and stable populations for most species

Future: Expected to remain low

Control Projects (method, material, acres, cost, results): None

Comments:

ME

MAINE
1991 PEST CONDITIONS REPORT WORK SHEET

Host Tree(s) (including forest type): Eastern Larch - Spruce Fir group

Damage/Pest:

Common Name: Eastern Larch Bark Beetle

Scientific Name: Dendroctonus simplex

Survey:

Method(s) Used: Ground checks for mortality

Total Area Surveyed: 200 acres

Present Condition:

Area (total Acres): Undetermined

Location: Statewide

Severity (include areas of moderate and heavy defoliation or infection; define classes): Mortality is common

Losses (include areas of tree mortality; also volume and/or $ estimates): Undetermined

Trend:

Past to Present: Mortality within stands approx. 5% per year

Future: Mortality appears to be lessening

Control Projects - (method, material, acres, cost, results): None, some salvage

Comments:

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MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Apple and Cherry

Damage/Pest:

Common Name: Eastern Tent Caterpillar

Scientific Name: Malacosoma americana

Survey:

Method(s) Used: Visual

Total Area Surveyed: Statewide

Present Condition:

Area (total acres): Statewide

Location (indicate on map): Statewide

Severity (include areas of moderate and heavy defoliation or infection; define classes): Very low populations and damage

Losses (include areas of tree mortality; also volume and/or $ estimates): None except aesthetic

Trend:

Past to Present: Down from 1990 levels

Future: Expected to continue down but with some possible areas of increased populations in eastern and northern Maine

Control Projects (method, material, acres, cost, results): None

Comments:

ME

MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Aspen (Aspen/Birch)

Damage/Pest:

Common Name: Forest Tent Caterpillar

Scientific Name: Malacosoma disstria

Survey:

Method(s) Used: Visual

Total Area Surveyed: Statewide but especially western (Jackman area) and northern areas.

Present Condition:

Area (total acres): N/A

Location (indicate on map): Statewide

Severity (include areas of moderate and heavy defoliation or infection; define classes): No defoliation reported

Losses (include areas of tree mortality; also volume and/or $ estimates): None

Trend:

Past to Present: Populations remain generally at low levels although scattered reports of larval activity (low numbers) were reported in 1991 from northern Maine.

Future: Not known but possibly populations may begin increasing

Control Projects (method, material, acres, cost, results):

Comments:

ME

MAINE
1991 PEST CONDITIONS REPORT WORK SHEET

Host Tree(s) (including forest type): Various hardwoods Oak/Pine

Damage/Pest:

Common Name: Gypsy Moth

Scientific Name: Lymantria dispar

Survey:

Method(s) Used: Aerial defoliation survey
Egg mass survey
Larval survey

Total Area Surveyed: 8,500,000 acres

Present Condition:

Area (total Acres): 614,509 acres

Location: Southwestern Maine

Severity (include areas of moderate and heavy defoliation or infection; define classes): Moderate 31-60% defoliation 82,475 acres, Heavy 61%+ defoliation 141,550 acres

Losses (include areas of tree mortality; also volume and/or $ estimates): Losses undetermined

Trend:

Past to Present: Gypsy moth populations are at the peak of an epidemic phase

Future: Infested area will remain high in 1992 but involve reduced acreage from 1991 levels.

Control Projects - (method, material, acres, cost, results): Aerial application of B.t. to 140 acres in the town of Livermore cost $4,082 in direct suppression costs. Foliage protection and landowner satisfaction is adequate. Larval population reduction was low.

Comments:

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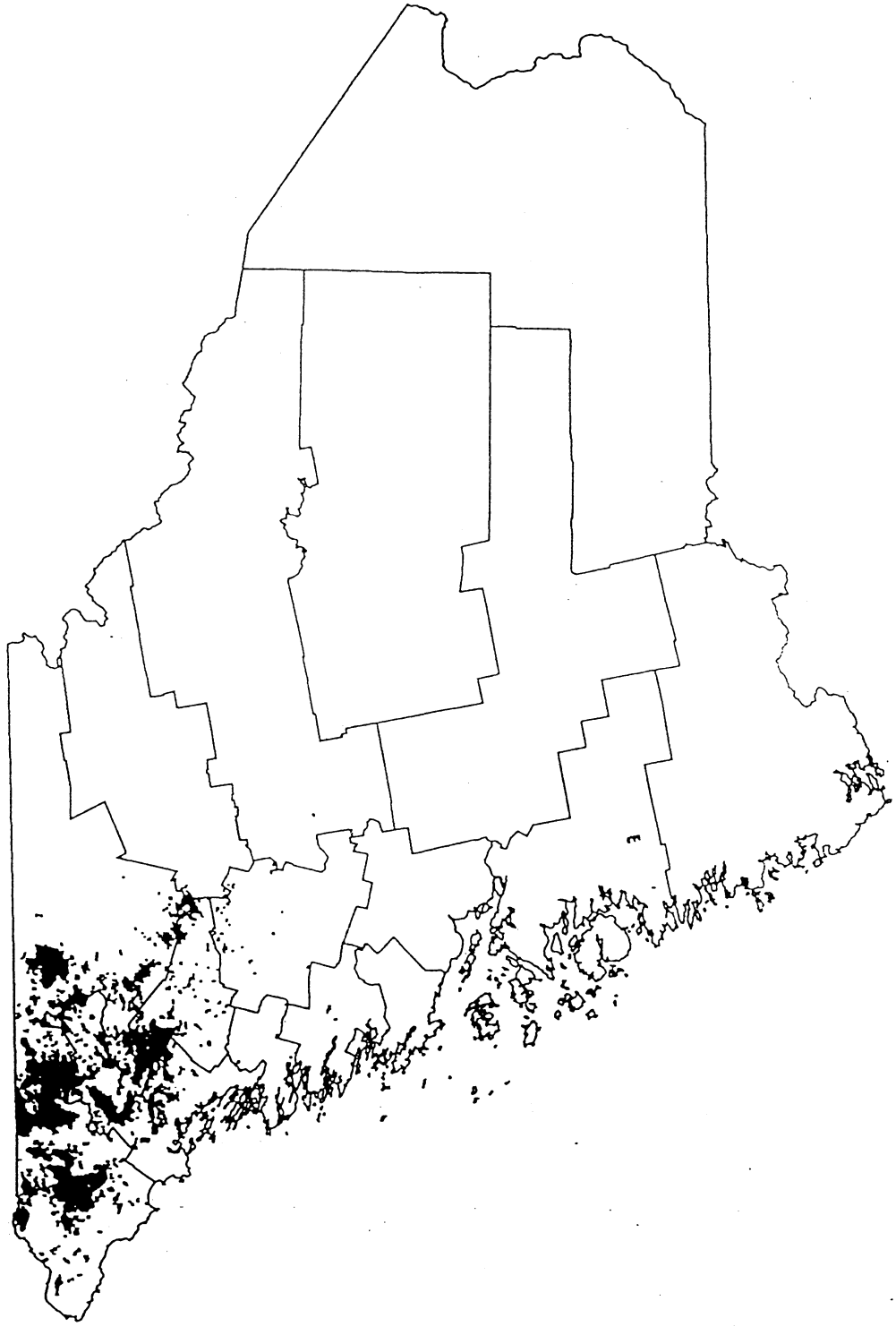
1991
GYPSY MOTH DEFOLIATION IN MAINE



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MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Hemlock (Spruce/Fir)

Damage/Pest:

Common Name: A hemlock looper

Scientific Name: Lambdina athasaria

Survey:

Method(s) Used: Plots and visual spot checks

Total Area Surveyed: 11,500 acres

Present Condition:

Area (total acres): 11,500 acres

Location (indicate on map): 10,000 in Sebago (Cumberland Co.), 1,500 acres in Lincoln and Sagadahoc Counties

Severity (include areas of moderate and heavy defoliation or infection; define classes): Populations of this species found only in Cumberland Co. Current (1991) defoliation none to light.

Losses (include areas of tree mortality; also volume and/or $ estimates): Light mortality in Sebago

Trend:

Past to Present: Down strikingly

Future: No problem expected in 1992

Control Projects (method, material, acres, cost, results): None for this species

Comments:

ME

MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Eastern hemlock, Balsam fir, White spruce, several other minor hosts

Damage/Pest:

Common Name: Hemlock Looper
Scientific Name: Lambdina fiscellaria fiscellaria (Gn.)

Survey:

Method(s) Used: Hemlock Looper was surveyed for overwintering eggs and spring larvae using branch samples, moth activity using light traps, and for defoliation from the ground and aerially. Most methods used were developed or modified to fit Maine conditions.

Total Area Surveyed: A total of 5.5 million acres was surveyed for looper populations and damage. Most of the acreage was evaluated more than once for different life stages or damage conditions.

Present Condition:

Area (total acres): 225,000 acres were found to have heavy to severe damage, 100,000 acres of moderate.

Location (indicate on map): Map attached-Most defoliation occurred on hemlock in central and eastern Maine. Heavy damage was also found along the coast on hemlock, fir and white spruce.

Severity (include areas of moderate and heavy or defoliation or infection; define classes): Heavy to severe (>45% total tree defoliation) = 225,000 acres. Moderate (30 to 44% total defoliation) = 100,000 acres.

Losses (include areas of tree mortality: also volume and/or $ estimates): Approximately 2,500 of 50% or greater mortality to hemlock have been noted. Most of this area has been salvaged. The MFS estimated 12,000 acres have greater than 10% hemlock mortality. Generally these areas have not been salvaged. Many areas have scattered mortality on residential and recreational properties. Owners of these properties are very concerned with aesthetics and property values.

Trend:

Past to Present: The acreage receiving moderate to severe defoliation has increased sharply since 1989 (450-1989, 20,000-1990, 325,000-1991).

Future: Predictive egg surveys are incomplete, but based on moth catches in light traps and some egg results, the area defoliated in 1992 should be similar in size to 1991. Some areas are showing declines and new areas have appeared.

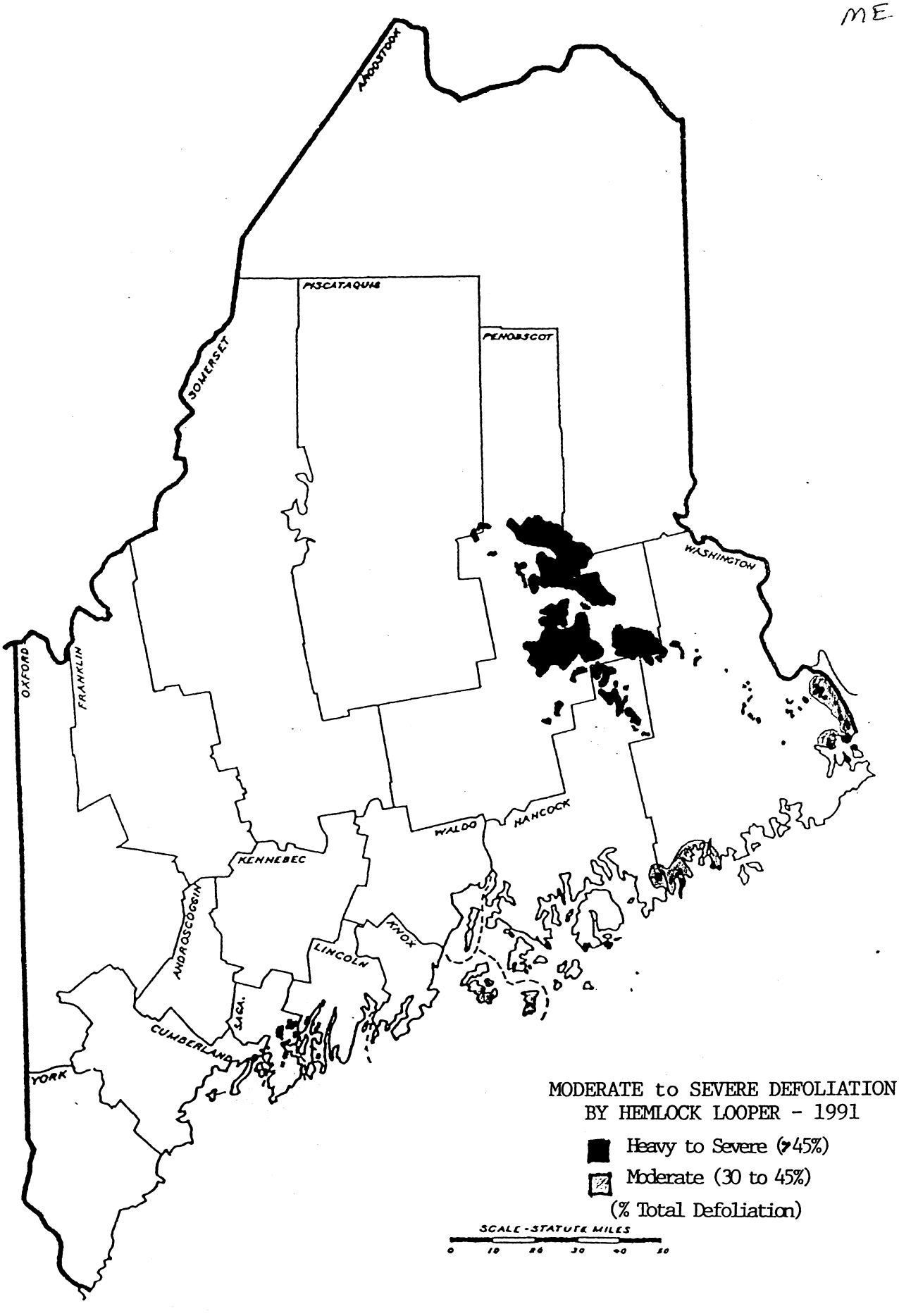
ME

Control Projects (method, material, acres, cost, results): Two control projects were conducted in Maine in 1991. About 200 acres were treated with Dipel 8L in Lincoln County to protect residential and recreational properties. Also the Passamaquoddy Nation cooperated with several federal agencies to treat 3,500 acres of forest land in eastern Maine. Results of both projects appeared good. Private owners of large tracts of forest land have chosen to control looper with targeted salvage operations. To date over 2,500 acres of forest have been cut to remove the damaged hemlock component. Some clear cutting has been necessary, but most areas have contained enough stocking of resistant species to allow partial cutting. Landowners will cooperate with the MFS in 1991-92 to delineate stands in need of accelerated hemlock removal. Several small landowners have expressed interest in spray projects in 1992 to protect high value properties.

Comments: The impact of Hemlock looper in Maine is being studied, but results are far from complete. Looper kills a high percentage of its' hosts in some stands and little in other. The reasons for this difference are not yet clear.

MAINE

ME


AROOSTOOK
PISCATAQUIS
PENOBSCOT
SOMERSET
WASHINGTON
OXFORD
FRANKLIN
WALDO
HANCOCK
KENNEBEC
ANDROSCOGGIN
KNOX
LINCOLN
SAG.
CUMBERLAND
YORK
MODERATE to SEVERE DEFOLIATION
BY HEMLOCK LOOPER - 1991
Heavy to Severe (>45%)
Moderate (30 to 45%)
(% Total Defoliation)
SCALE - STATUTE MILES
0 10 20 30 40 50

ME

MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Eastern Hemlock in Spruce/Fir, White/Red Pine, and Northern Hardwood Forest types

Damage/Pest:

Common Name: Hemlock Woolly Adelgid
Scientific Name: Adelges tsugae

Survey:

Method(s) Used: On-ground inspection of three or more hemlocks at individual locations:
Forest stands in conjunction with hemlock looper surveys
Roadside hemlocks at picnic and rest areas in southern and central ME
Specific checks of horticultural hemlocks throughout ME

Total Area Surveyed: Survey represents total hemlock resource for southern 2/3rds of ME.
Because hemlock exists as a scattered component in many stand types, the actual acreage of hemlock is not well defined. The survey sampled from approximately 4 million acres of softwood stands.

Present Condition:

Area (total acres): No known infestation in ME
Location (indicate on map): Map outlines general areas surveyed.
Severity (include areas of moderate and heavy defoliation or infection; define classes): None
Losses (include areas of tree mortality; also volume and/or $ estimates): None

Trend:

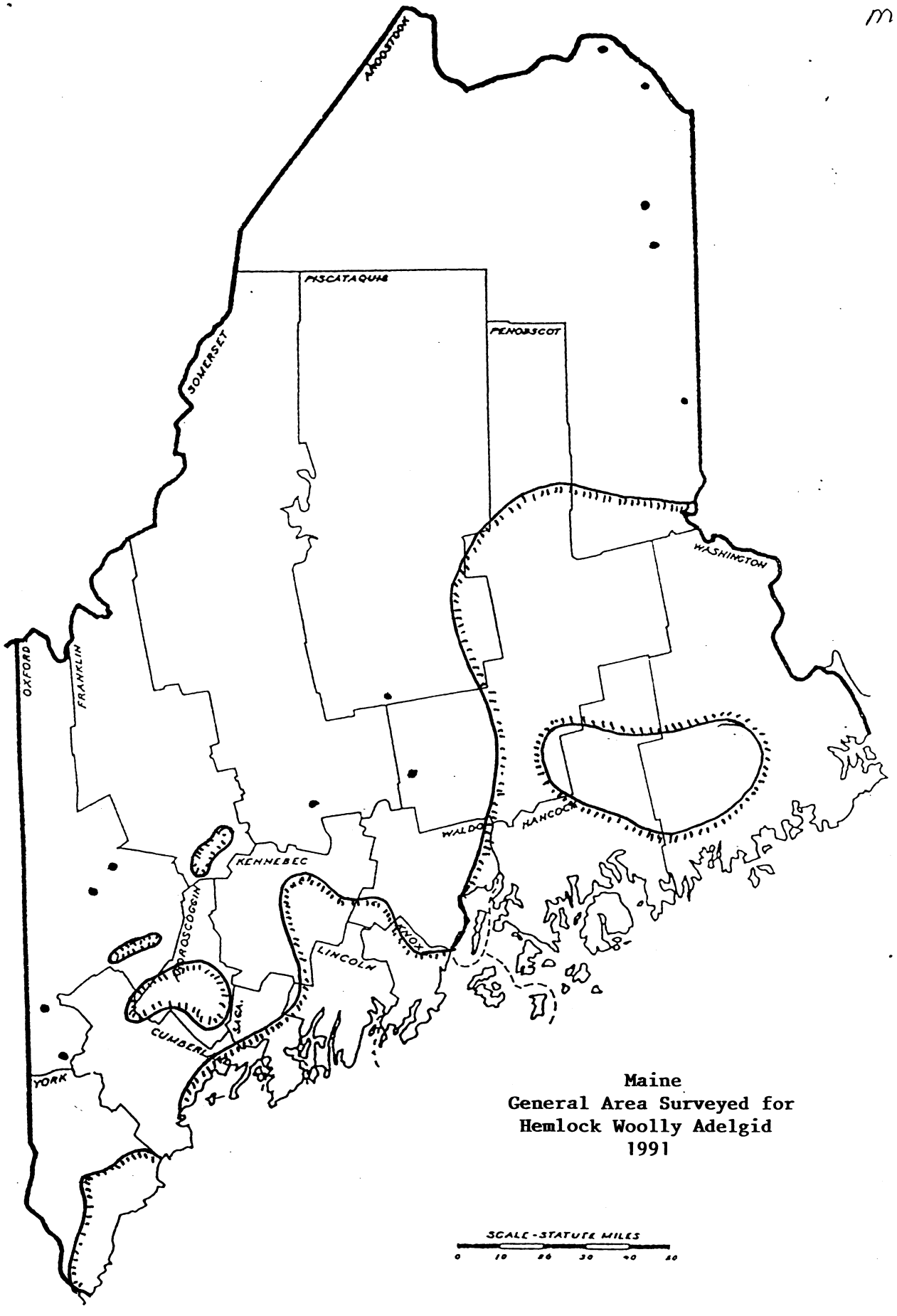
Past to Present: Finding additional areas in Mass. suggests northern expansion of this insect's range.

Future: That to date all populations found have been in Class 6 or higher ARS plant hardiness zones reduces the probability of any immediate threat to Maine's hemlock resource.

Control Projects (method, material, acres, cost, results): MFS and ME Dept. of Agr. maintain and monitor a joint quarantine on importation of hemlock products from infested areas. This effort appears to have precluded any artificial introduction of this pest to date.

Comments: Rich Hansen's work on cold hardiness demonstrates that winter temperatures, while not precluding survival of this pest in Maine, would have considerable impact on rates of survival (and consequently on severity of damage). Further investigation is warranted on this aspect of population dynamics.

ME



Maine
General Area Surveyed for
Hemlock Woolly Adelgid
1991

ME

MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Larch (Spruce/Fir)

Damage/Pest:

Common Name: Larch Casebearer

Scientific Name: Coleophora lariella

Survey:

Method(s) Used: Visual

Total Area Surveyed: Southern half of the State

Present Condition:

Area (total acres): N/A

Location (indicate on map): Southern Half of the State

Severity (include areas of moderate and heavy defoliation or infection; define classes): Damage ("Scorched" foliage) was heavy to severe in many stands this season.

Losses (include areas of tree mortality; also volume and/or $ estimates): Difficult to assess but this species seems to play an obvious role in accentuating decline of larch.

Trend:

Past to Present: Up strikingly

Future: Expected to remain high

Control Projects (method, material, acres, cost, results): None

Comments:

ME

MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Aspen (Aspen/Birch)

Damage/Pest:

Common Name: Large Aspen Tortrix

Scientific Name: Choristoneura conflictana

Survey:

Method(s) Used: Visual and spot checks

Total Area Surveyed: 15,000 acres

Present Condition:

Area (total acres): 15,000 acres

Location (indicate on map): Central Somerset County especially in the Jackman area and in Pierce Pond and Bigelow townships

Severity (include areas of moderate and heavy defoliation or infection; define classes): There were reports of several hundred acres of aspen defoliated by this species in Pierce Pond and Bigelow townships. Populations and damage in the Jackman area were generally light.

Losses (include areas of tree mortality; also volume and/or $ estimates): None

Trend:

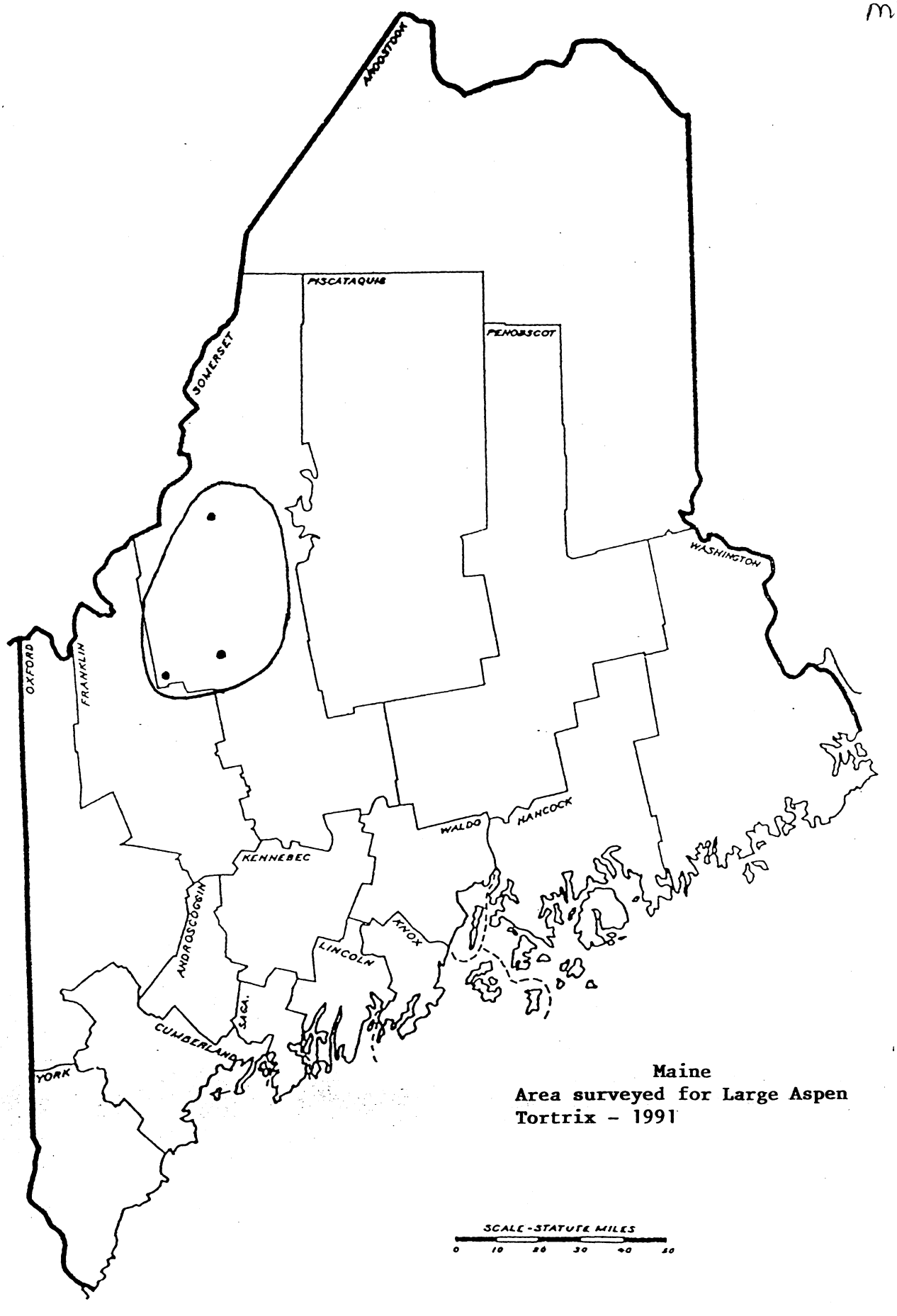
Past to Present: Down in most areas except Pierce Pond and Bigelow Twps.

Future: Expected to show up in hot spots but generally to remain relatively low and spotty

Control Projects (method, material, acres, cost, results): None

Comments:

ME



Maine
Area surveyed for Large Aspen Tortrix - 1991

MAINE

1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

ME

Host Tree(s) (including forest type): Red Maple - Elm/Ash/Red Maple

Damage/Pest:

Common Name: Maple Leafroller

Scientific Name: Sparganothis acerivorana

Survey:

Method(s) Used: Ground Observations and Aerial Reconnissance

Total Area Surveyed: 50,000 Acres

Present Condition:

Area (total acres): No visible damage in 1991

Location (indicate on map): No Map

Severity (include areas of moderate and heavy defoliation or infection; define classes): None

Losses (include areas of tree mortality; also volume and/or $ estimates): None

Trend:

Past to Present: 1987-No damage; 1988-17,670 acres of moderate to heavy defoliation; 1989-23,300 acres of moderate to heavy defoliation; 1990-20,000-30,000 acres had light to moderate damage; 1991-No visible damage detected.

Future: There are no indications that this pest will cause any damage in the near future.

Control Projects (method, material, acres, cost, results): None

Comments: The area defoliated from 1988-1990 was located east and south of Ellsworth in southern Hancock County.

ME

MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Red Oak (Oak/Pine)

Damage/Pest:

Common Name: Oak Leaftier

Scientific Name: Croesia semipurpurana

Survey:

Method(s) Used: Visual

Total Area Surveyed: N/A

Present Condition:

Area (total acres): N/A

Location (indicate on map): South western Maine north to Augusta

Severity (include areas of moderate and heavy defoliation or infection; define classes): No reportable defoliation

Losses (include areas of tree mortality; also volume and/or $ estimates): None

Trend:

Past to Present: Remains at very low levels

Future: Expected to remain low in 1992

Control Projects (method, material, acres, cost, results): None

Comments:

ME

MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Red Oak, Oak/Pine

Damage/Pest:

Common Name: Oak Leaf Shot-Hole

Scientific Name: caused by Japanagromyza viridula

Survey:

Method(s) Used: Visual with spot checks

Total Area Surveyed: Several thousand acres

Present Condition:

Area (total acres): Several thousand acres (heavy populations)

Location (indicate on map): Present on red oak throughout its range in Maine but especially abundant in southwestern Hancock County, west central Maine and locally elsewhere.

Severity (include areas of moderate and heavy defoliation or infection; define classes): Very heavy damage to oak foliage in the Blue Hill-Mount Desert area and in and around Farmington.

Losses (include areas of tree mortality; also volume and/or $ estimates): None

Trend:

Past to Present: Up strikingly in 1991

Future: Not known

Control Projects (method, material, acres, cost, results): None

Comments:

ME

MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Sugar Maple & Beech - Northern Hardwoods

Damage/Pest:

Common Name: Orangehumped Mapleworm

Scientific Name: Symmerista leucitys

Survey:

Method(s) Used: Ground Observations and Aerial Reconnaissance

Total Area Surveyed: 700,000 Acres

Present Condition:

Area (total acres): No visible damage in 1991

Location (indicate on map): No Map

Severity (include areas of moderate and heavy defoliation or infection; define classes): None

Losses (include areas of tree mortality; also volume and/or $ estimates): None

Trend:

Past to Present: 1986-Insect was detected in low numbers; 1987-A sharp rise in population level; 1988-Was one of several insects to defoliate approximately 120,000 acres; 1989-Populations declined and roughly 30,000 acres defoliated; 1990-Population collapsed and no detectable defoliation; 1991-No visible defoliation.

Future: We do not expect any damage from this pest in the near future.

Control Projects (method, material, acres, cost, results): None

Comments:

ME

MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Sugar Maple (Northern Hardwoods)

Damage/Pest:

Common Name: Pear Thrips

Scientific Name: Taeniothrips inconsequens

Survey:

Method(s) Used: Spot sampling and plots

Total Area Surveyed: 2,900 acres

Present Condition:

Area (total acres): 2,900 acres

Location (indicate on map): Central and southern Maine

Severity (include areas of moderate and heavy defoliation or infection; define classes): Populations generally low although light feeding damage was observed in Mt. Vernon and Carroll.

Losses (include areas of tree mortality; also volume and/or $ estimates): None

Trend:

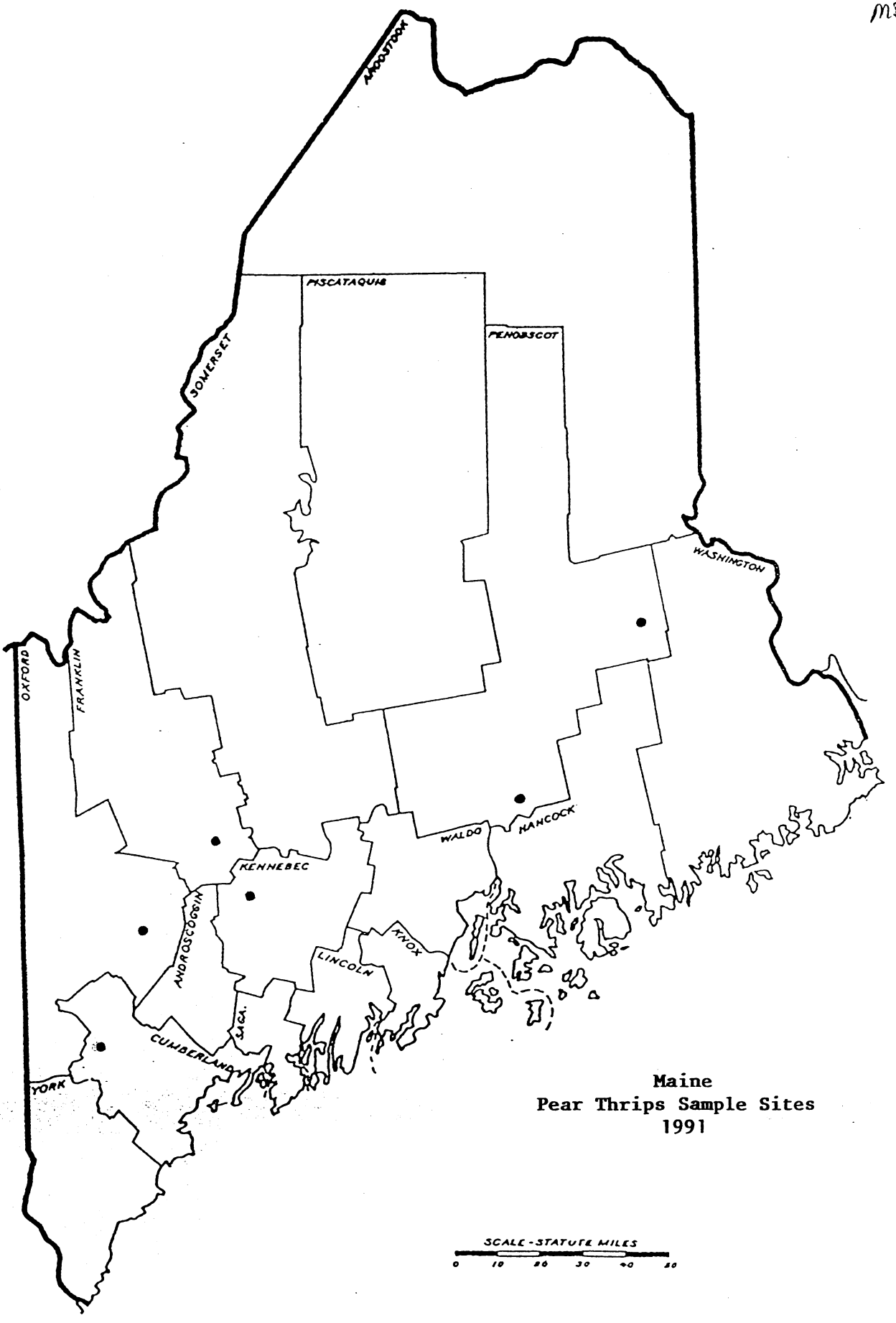
Past to Present: Stable at relatively low levels

Future: Not known

Control Projects (method, material, acres, cost, results): None

Comments: Aside from visual surveys with spot checks, 6 sites were sampled for spring adult activity using yellow sticky traps. This survey was done in conjunction with the USDA-APHIS-PPDS. Adult activity was detected at all sites but heaviest total numbers were 145 from West Paris (southern Oxford County), 280 from Carroll (central Penobscot County) and 57 from Farmington (Franklin County). None, however, showed significant potential for damage. The first emergence in 1991 occurred during the second week of April (7-13) in West Paris and Baldwin.

ME



Maine
Pear Thrips Sample Sites
1991

ME

MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Sugar Maple (Northern Hardwoods)

Damage/Pest:

Common Name: Saddled Prominent

Scientific Name: Heterocampa guttivitta

Survey:

Method(s) Used: Visual and light trap

Total Area Surveyed: Northern Hardwood areas

Present Condition:

Area (total acres): N/A

Location (indicate on map): Northern Hardwood stands across central and southern Maine as far north as Island Falls.

Severity (include areas of moderate and heavy defoliation or infection; define classes): No defoliation reported

Losses (include areas of tree mortality; also volume and/or $ estimates): None

Trend:

Past to Present: Stable at low levels

Future: Little change expected in the short term

Control Projects (method, material, acres, cost, results): None

Comments: MFS-I&DM participated in the USFS pheromone trapping program at 3 sites in 1991 (Exeter, Washington and Mt. Vernon). Numbers of moths caught was low at all sites (see Table attached).

ME

Saddled Prominent Trapping Summary

1st Lure Set: No. Heterocampa guttivitta trapped

Treatment/ Location	Washington	Exeter	Mt. Vernon	Totals
#1 - Blue	0	0	0	0
#2 - Brown	0	1	1	2
#3 - Orange	0	0	0	0
#4 - Yellow	1	0	0	1
#5 - White	0	0	0	0
#6 - Green	0	0	0	0
CK - Silver	0	0	0	0
Totals	1	1	1	3

2nd Lure Set: No. Heterocampa guttivitta trapped

Treatment/Location	Washington	Exeter	Mt. Vernon	Totals
1A - Purple	0	1	0	1
2A - Brown	0	2	1	3
3A - Orange	1	2	0	3
4A - White	1	0	3	4
5A - Yellow	3	1	1	5
6A - Blue	2	0	1	3
CK - Silver	0	0	0	0
Totals	7	6	6	19

It should be noted that in relation to light trap catches of H. guttivitta at Mt. Vernon and No. Bridgton, the deployment of the pheromone traps may have been a little late and therefore may not have recognized their full potential in Maine.

At this writing a report has not been received from the USFS on the results of the whole experiment.

Daniel Pratt, Entomologist

ME

MAINE
1991 PEST CONDITIONS REPORT WORK SHEET

Host Tree(s) (including forest type): Red Pine - Hard Pine group

Damage/Pest:

Common Name: Saratoga Spittlebug

Scientific Name: Aphrophora saratogensis

Survey:

Method(s) Used: Egg and nymphal surveys

Total Area Surveyed: 25 acres

Present Condition:

Area (total Acres): 2,500 acres

Location: Eastern Maine

Severity (include areas of moderate and heavy defoliation or infection; define classes): Very spotty, damage most severe in frost pockets.

Losses (include areas of tree mortality; also volume and/or $ estimates): Mortality is extensive in some plantations, no economic assessment has been done

Trend:

Past to Present: Damage high for several years

Future: Planting has been curtailed in the barrens of eastern Maine because of this pest.

Control Projects - (method, material, acres, cost, results): Not cost effective

Comments:

ME

MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Spruce-fir type, White Spruce, and Red Spruce

Damage/Pest:

Common Name: Spruce Beetle
Scientific Name: Dendroctonus rufipennis (Kirby)

Survey:

Method(s) Used: Aerial and ground detection to locate newly infested trees.

Total Area Surveyed: Total area surveyed was 3,000,000 acres.

Present Condition:

Area (total acres): 9,050 -This is an increase of 100 acres over the 1990 figure and represents the discovery of spruce beetle damage on several islands off the southeast coast.

Location (indicate on map): Map attached. Area in the north and west have not changed, but new small pocket of damage have been found on islands off Hancock County.

Severity (include areas of moderate and heavy or defoliation or infection; define classes): The 9,050 acres represents heavy infestation where >25% of the spruce stems have died. Scattered individual trees or small clumps of mortality were identified on over 1,000,000 acre mostly in the northwest.

Losses (include areas of tree mortality: also volume and/or $ estimates): Most of the 9,050 acres of heavy mortality have been or are being salvaged. Approximately 2,000 acres of heavy damage was not salvaged due to proximity to water, deer wintering areas, or because it was not accessible. One owner fixed the loss of saw log spruce at approximately 10 cords per acre. Another owner said that nearly all salvaged timber failed to meet log specifications due to beetle damage and was sold as pulp.

Trend:

Past to Present: The spruce beetle infestation in the past has increased in spurts of heavy activity mixed with periods of very low activity. In 1990 and 1991 several areas appeared to have peaked and very little new attack has been reported.

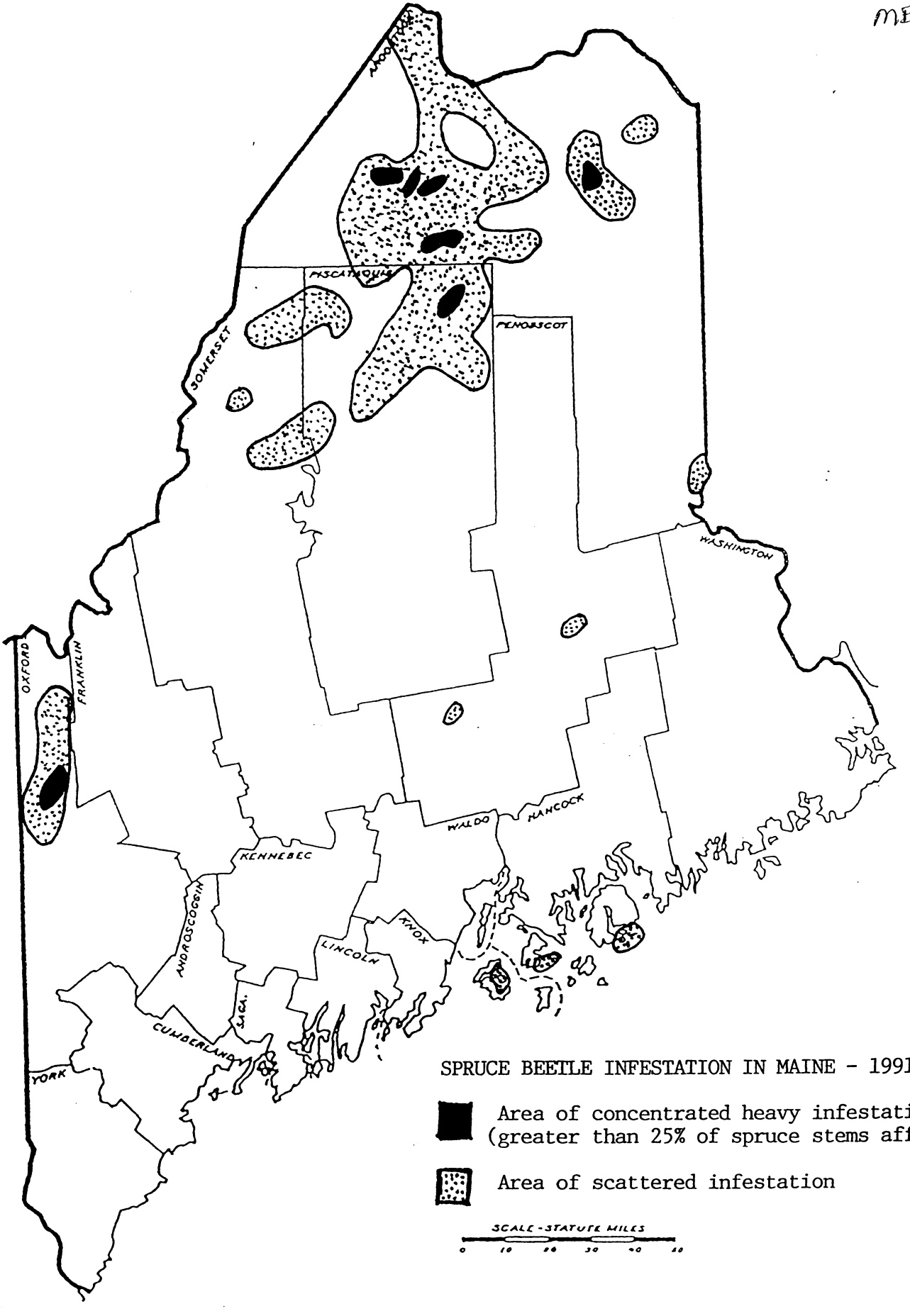
Future: Areas in the north and west are expected to remain stable. Newly discovered areas on the coast may increase in 1992.

Control Projects (method, material, acres, cost, results): Salvage of attacked trees has been the only useful control method.

ME

Comments: The outbreak of spruce beetle in Maine appears to have peaked about 1989. A significant resurgence in the outbreak is not expected. Much of the favored host (large white spruce) in the north and west was significantly impacted by the outbreak.

ME


AROOSTOOK
PISCATAQUIS
SOMERSET
PENOBSCOT
WASHINGTON
OXFORD
FRANKLIN
WALDO
HANCOCK
KENNEBEC
ANDROSCOGGIN
KNOX
LINCOLN
SAG.
CUMBERLAND
YORK
SPRUCE BEETLE INFESTATION IN MAINE - 1991
Area of concentrated heavy infestation (greater than 25% of spruce stems affected
Area of scattered infestation
SCALE - STATUTE MILES
0 10 20 30 40 50

ME

MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): White Spruce (Spruce/Fir)

Damage/Pest:

Common Name: Spruce Budmoth

Scientific Name: Zeiraphera canadensis

Survey:

Method(s) Used: Visual with spot checks

Total Area Surveyed: N/A

Present Condition:

Area (total acres): N/A

Location (indicate on map): Statewide

Severity (include areas of moderate and heavy defoliation or infection; define classes): Where infestations occur damage continues to be heavy. This is primarily a plantation problem.

Losses (include areas of tree mortality; also volume and/or $ estimates): Heavy in some plantations. No estimate of value

Trend:

Past to Present: Stable at destructive levels

Future: Expected to remain a problem in susceptible plantations.

Control Projects (method, material, acres, cost, results): None

Comments:

ME

MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Spruce-fir type, Balsam fir, White spruce, Red spruce

Damage/Pest:

Common Name: Spruce Budworm
Scientific Name: Choristoneura fumiferana

Survey:

Method(s) Used: Branch sample beaten on cloth frame, light traps for moths, aerial defoliation survey.

Total Area Surveyed: Very low density ground survey was done on 20 locations (20,000 acres), aerial survey covered 150,000 acres, and the network of 23 light traps covers the entire state.

Present Condition: Spruce budworm is now endemic everywhere in Maine.

Area (total acres): 0
Location (indicate on map): None
Severity (include areas of moderate and heavy defoliation or infection; define classes): None
Losses (include areas of tree mortality; also volume and/or $ estimates): Minor tree mortality continues in Hancock County which was the last area that contained significant budworm populations. This mortality due to secondary causes such as root rot.

Trend:

Past to Present: Steady decline to endemic condition - 1985 to 1991.
Future: Expected to stay at endemic levels.

Control Projects (method, material, acres, cost, results): None

Comments: No larvae were found in branch samples and only 2 moths were caught in light traps throughout the state. Pheromone traps were not put out in 1991 due to severe restraints on resources.

ME

MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Beech (Northern Hardwoods)

Damage/Pest:

Common Name: Variable Oakleaf Caterpillar

Scientific Name: Lochmaeus manteo

Survey:

Method(s) Used: Visual with spot checks

Total Area Surveyed: 250,000 acres

Present Condition:

Area (total acres): 250,000 acres

Location (indicate on map): Across central and eastern Maine including central Somerset, southern Piscataquis, central Penobscot, an area in southern Aroostook and Washington Counties.

Severity (include areas of moderate and heavy defoliation or infection; define classes): Only trace to light feeding noticed except on individual trees where damage was occasionally heavy.

Losses (include areas of tree mortality; also volume and/or $ estimates): None directly. Some stress related mortality of beech was reported which could have resulted in part from damage by this species. (See Beech Bark Disease)

Trend:

Past to Present: Populations of both larvae and damage have continued downward.

Future: Trend expected to continue downward.

Control Projects (method, material, acres, cost, results): None

Comments:

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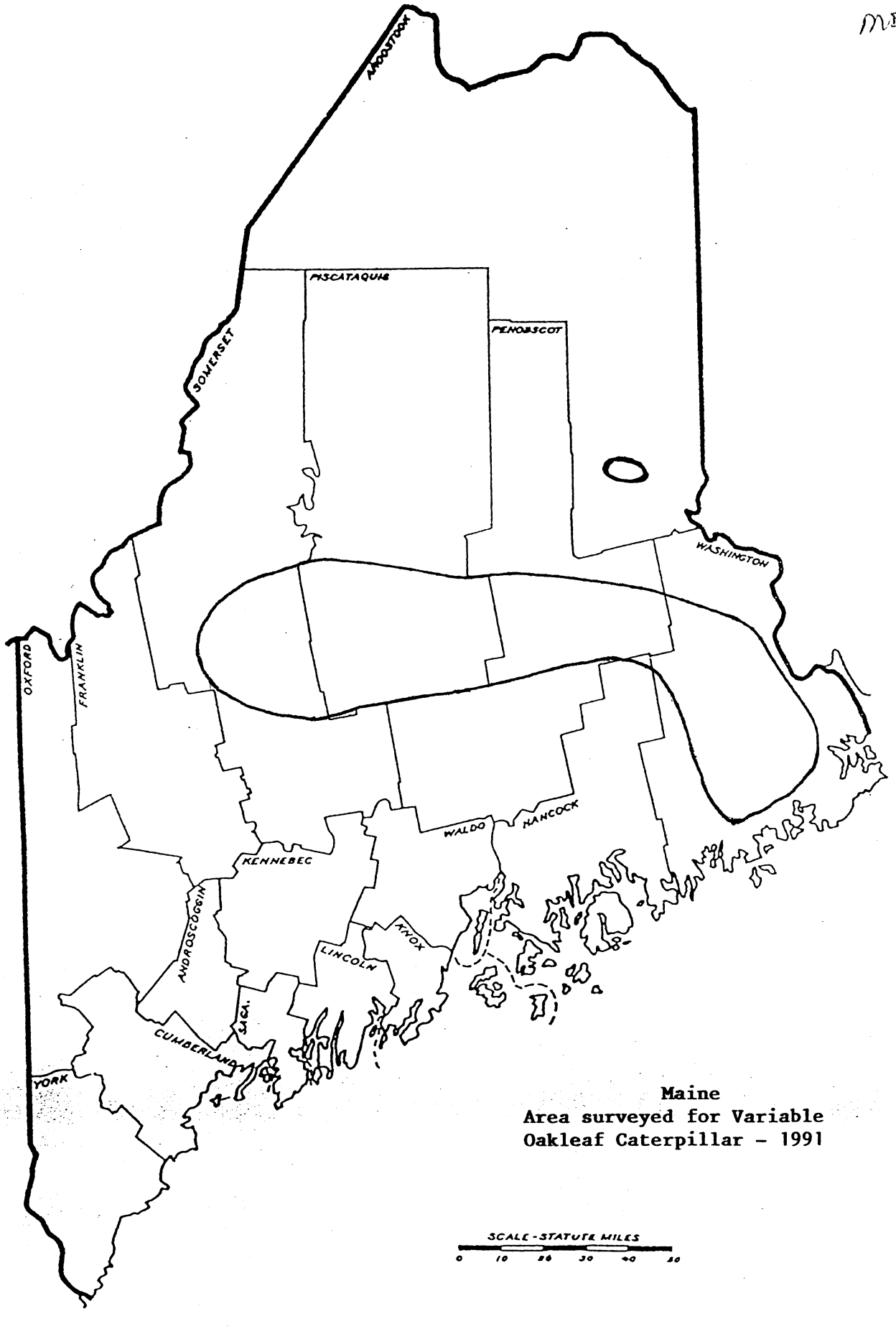


Maine
Area surveyed for Variable Oakleaf Caterpillar - 1991

ME

MAINE
1991 PEST CONDITIONS REPORT WORK SHEET

Host Tree(s) (including forest type): White Pine and Misc. spruces - White/Red pine group

Damage/Pest:

Common Name: White Pine Weevil

Scientific Name: Pissodes strobi (Peck)

Survey:

Method(s) Used: Damage survey from ground

Total Area Surveyed: 1,000 acres

Present Condition:

Area (total Acres): 418,900 acres

Location: Statewide

Severity (include areas of moderate and heavy defoliation or infection; define classes): Undetermined

Losses (include areas of tree mortality; also volume and/or $ estimates): Losses are undocumented. Damage frequently reduces affected trees from sawlog quality to pulpwood. Current pulpwood values are only 7% of sawlog values.

Trend:

Past to Present: High, but stable

Future: Will remain high 10-40% of plantations annually

Control Projects - (method, material, acres, cost, results):

Comments:

ME

MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Pinus strobus (White/Red Pine)

Damage/Pest:

Common Name: Air pollution

Scientific Name: Air contaminant not known

Survey:

Method(s) Used: Point Survey

Total Area Surveyed: 2 A

Present Condition:

Area (total acres): 2

Location (indicate on map):

Severity (include areas of moderate and heavy defoliation or infection; define classes): One acre - Moderate (30-69% of needles browned)
One acre - Severe (70-100% of needles browned)

Losses (include areas of tree mortality; also volume and/or $ estimates):
No mortality, some growth reduction, $1000 damage

Trend:

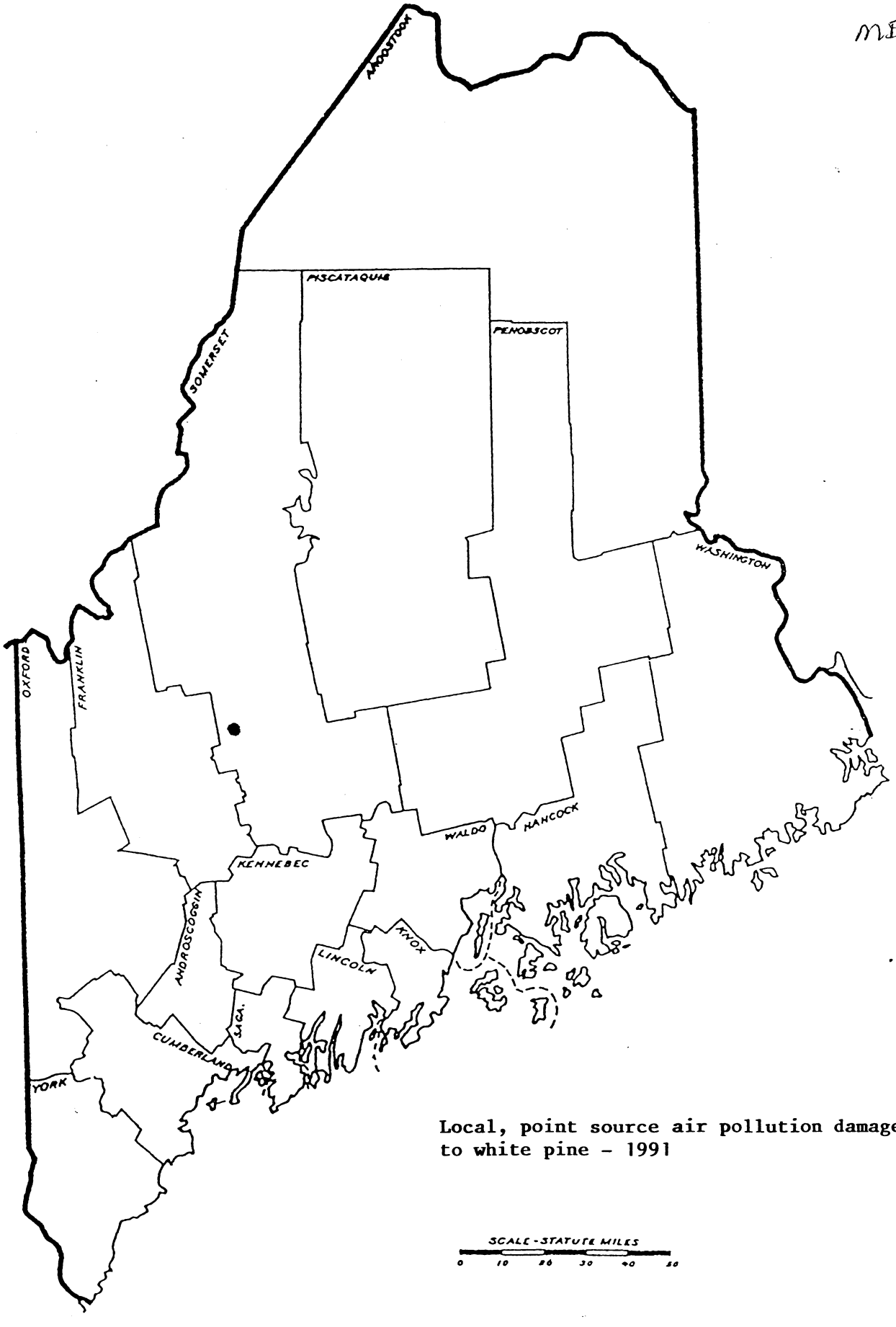
Past to Present: Up

Future: Down

Control Projects (method, material, acres, cost, results): None

Comments: This was a local, isolated incident of air pollution damage apparently caused during a period of temperature inversion last year. As of this date affected needles have been shed with only apparently healthy current year's foliage remaining.

MAINE



Local, point source air pollution damage to white pine - 1991

ME

MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Pinus resinosa (plantation)

Damage/Pest:

Common Name: Annosus Root Rot

Scientific Name: Heterobasidion annosum

Survey:

Method(s) Used: Point survey

Total Area Surveyed: 10 A

Present Condition:

Area (total acres): 1000

Location (indicate on map):

Severity (include areas of moderate and heavy defoliation or infection; define classes): 1000 A Traces to light (1-29% of trees infected or killed)

Losses (include areas of tree mortality; also volume and/or $ estimates): $15,000

Trend:

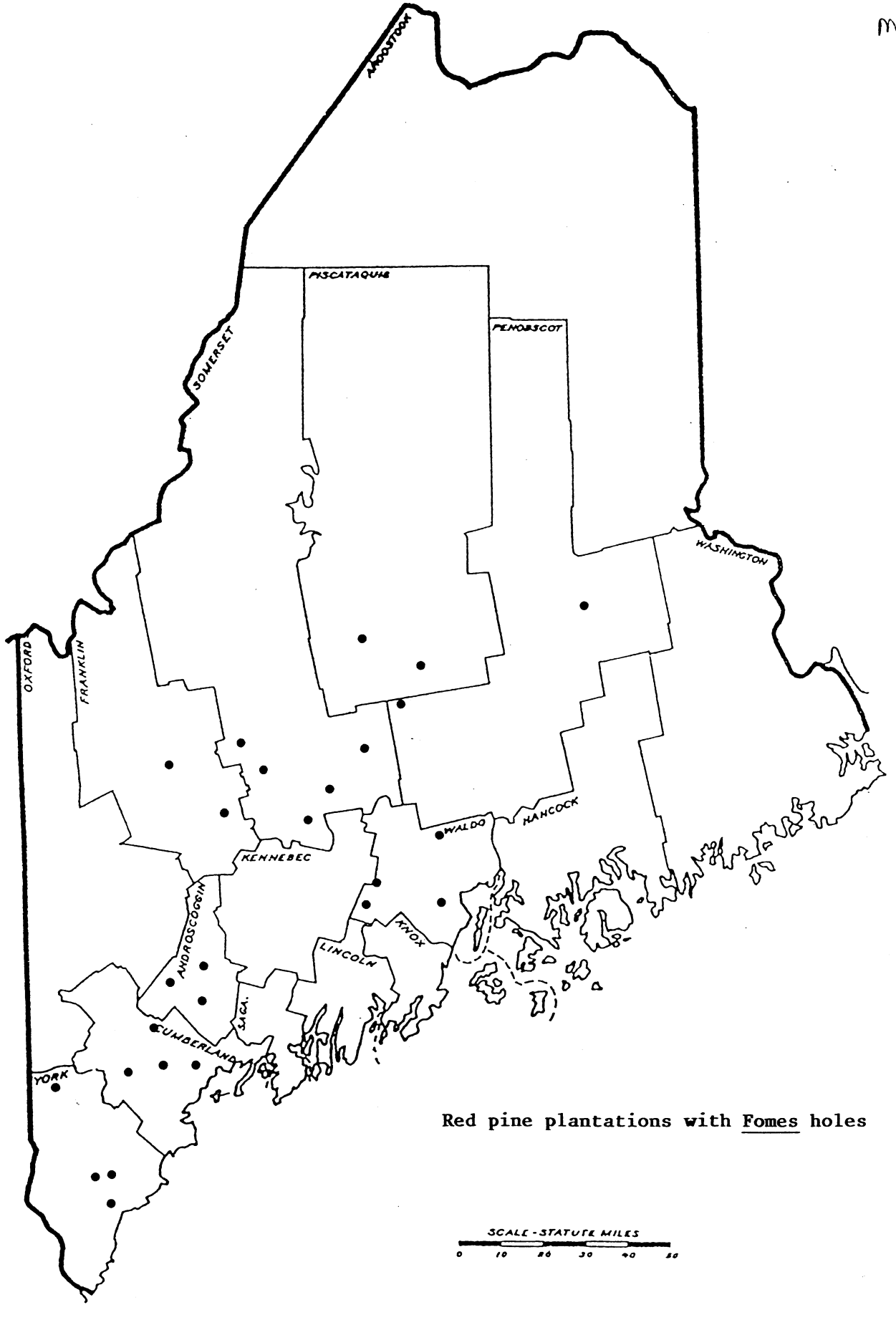
Past to Present: gradually increasing

Future: gradually increasing

Control Projects (method, material, acres, cost, results):

Comments: Appears only to be a problem in red pine plantations.

MAINE



Red pine plantations with Fomes holes

ME

MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Broad Host Range (All forest types, especially Spruce/Fir)

Damage/Pest:

Common Name: Armillaria Root Disease

Scientific Name: Armillariella spp.

Survey:

Method(s) Used: Point Survey

Total Area Surveyed: 20 A.

Present Condition:

Area (total acres): 17,000,000

Location (indicate on map): Statewide

Severity (include areas of moderate and heavy defoliation or infection; define classes): Trace over most of state (less than 1% of trees affected), a little more common in southeastern Maine.

Losses (include areas of tree mortality; also volume and/or $ estimates): Losses are substantial in forest situations due to the widespread nature of this problem. Even in ornamental situations, losses amount to tens of thousands of dollars annually.

Trend:

Past to Present: Declining

Future: Stable

Control Projects (method, material, acres, cost, results):

Comments: One expression of this disease, Stillwell's Syndrome, seems to be declining in the wake of the recent spruce budworm epidemic.

ME

MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Fraxinus nigra (Elm/Ash/Red Maple)

Damage/Pest:

Common Name: Ash Dieback

Scientific Name: Cause unknown

Survey:

Method(s) Used: Aerial

Total Area Surveyed: 2000 A.

Present Condition:

Area (total acres): 2000 (estimated)

Location (indicate on map): Aroostook County, especially along streams and wet areas, but also in upland areas.

Severity (include areas of moderate and heavy defoliation or infection; define classes): 750 A. Moderate (30-69% of trees symptomatic)
750 A. Severe (70-100% of trees symptomatic or dead)

Losses (include areas of tree mortality; also volume and/or $ estimates): Not quantified

Trend:

Past to Present: Increasing

Future: Increasing

Control Projects (method, material, acres, cost, results):

Comments: This disease to be something other than ash yellows.

ME

MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Fraxinus spp. (Elm/Ash/Red Maple)

Damage/Pest:

Common Name: Ash Yellows

Scientific Name: MLO's

Survey:

Method(s) Used:

Total Area Surveyed:

Present Condition:

Area (total acres):

Location (indicate on map):

Severity (include areas of moderate and heavy defoliation or infection; define classes):

Losses (include areas of tree mortality; also volume and/or $ estimates):

Trend:

Past to Present:

Future:

Control Projects (method, material, acres, cost, results):

Comments: We have not formally surveyed for this disease but to our knowledge it does not occur here. We do have a dieback of brown ash (Fraxinus nigra) which exhibits symptoms similar to ash yellows in certain respects.

ME

MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Pinus strobus (Spruce/Fir)

Damage/Pest:

Common Name: Caliciopsis Canker

Scientific Name: Caliciopsis pinea

Survey:

Method(s) Used: Point survey

Total Area Surveyed: 3 A.

Present Condition:

Area (total acres): Unknown

Location (indicate on map):

Severity (include areas of moderate and heavy defoliation or infection; define classes): 3 A. Light (6-29% of trees affected)

Losses (include areas of tree mortality; also volume and/or $ estimates): $1000

Trend:

Past to Present: Static

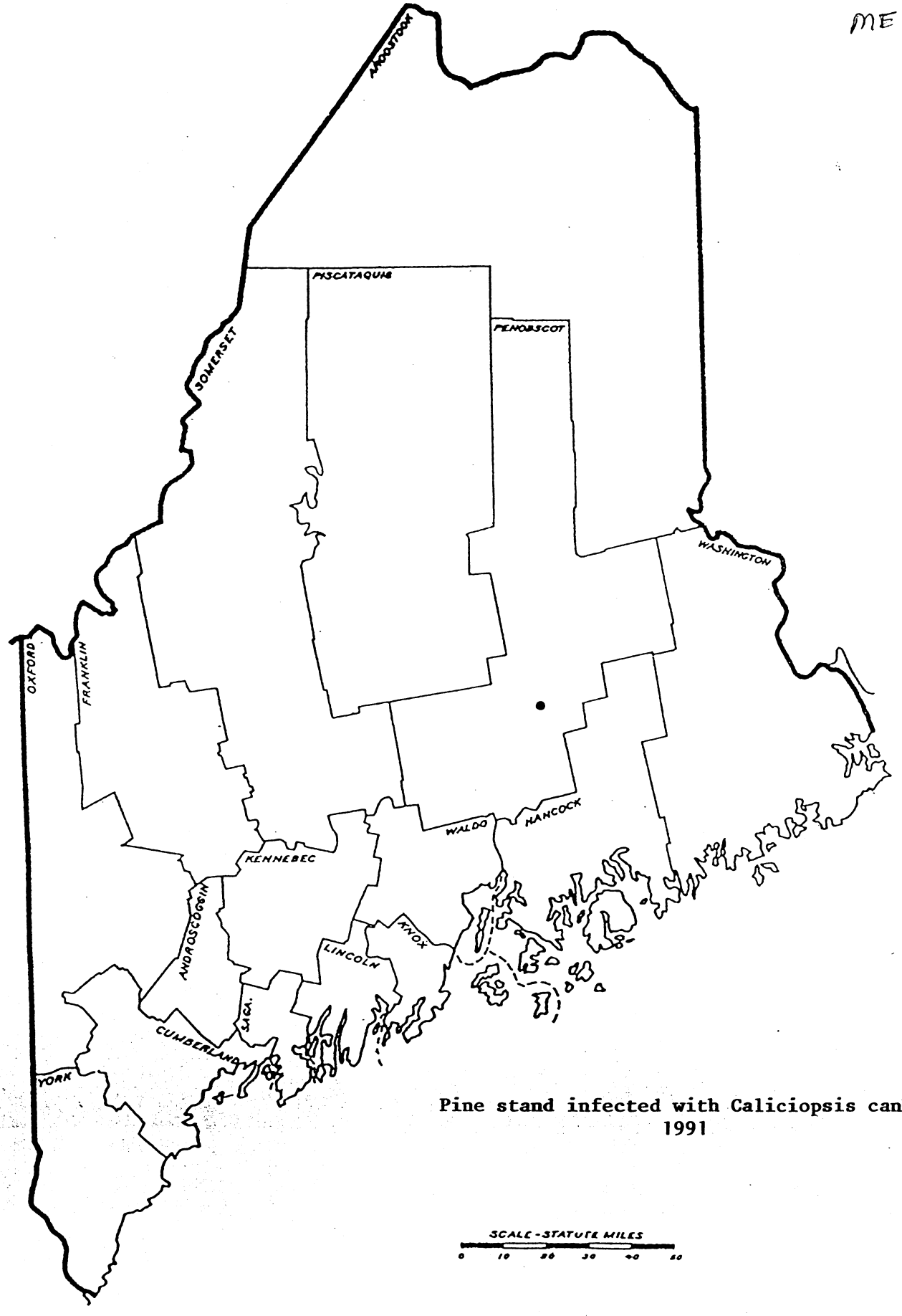
Future: Static

Control Projects (method, material, acres, cost, results):

Comments: Associated with trees in overstocked stands.

MAINE

ME



Pine stand infected with Caliciopsis canker
1991

ME

MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Pinus resinosa (Plantation)
Pinus rigida (Hard Pine)

Damage/Pest: Diplodia Tip Blight

Common Name: Sphaeropsis sapinea

Scientific Name:

Survey:

Method(s) Used: Point survey

Total Area Surveyed: 10 A.

Present Condition:

Area (total acres): Unknown

Location (indicate on map):

Severity (include areas of moderate and heavy defoliation or infection; define classes): 1 A. Moderate (30-69% of branch tips affected)
9 A. Severe (70-100% of branch tips affected)

Losses (include areas of tree mortality; also volume and/or $ estimates):
$10,000

Trend:

Past to Present: Increasing

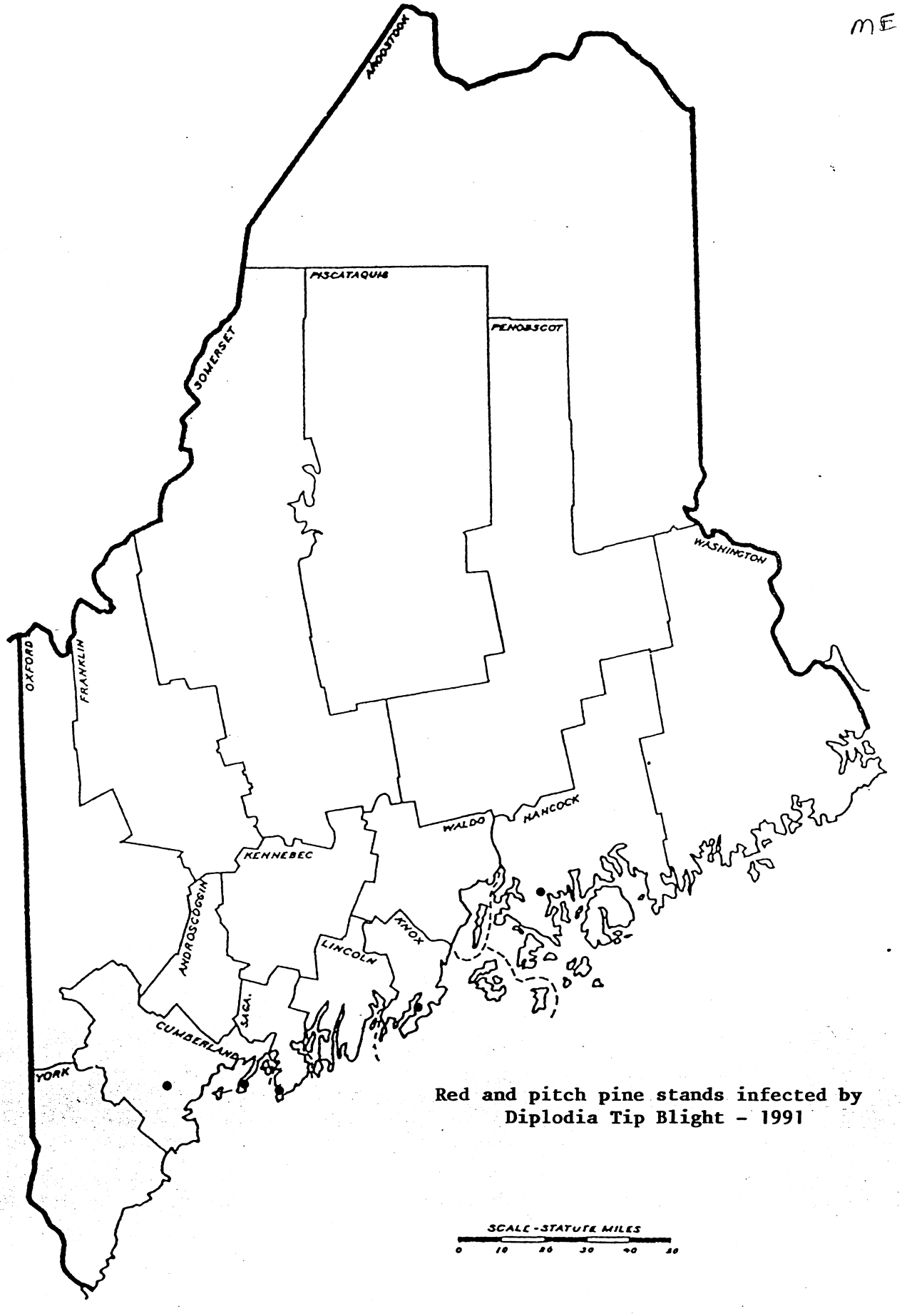
Future: Increasing

Control Projects (method, material, acres, cost, results):

Comments: This disease often affects red pine severely in plantations in mid-coast Maine, and often causes light to moderate damage to ornamentals, especially mugo pine.

MAINE

ME



Red and pitch pine stands infected by Diplodia Tip Blight - 1991

ME

MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Cornus florida (Oak/Hickory)

Damage/Pest:

Common Name: Dogwood Anthracnose

Scientific Name: Discula sp.

Survey:

Method(s) Used:

Total Area Surveyed:

Present Condition:

Area (total acres):

Location (indicate on map):

Severity (include areas of moderate and heavy defoliation or infection; define classes):

Losses (include areas of tree mortality; also volume and/or $ estimates):

Trend:

Past to Present:

Future:

Control Projects (method, material, acres, cost, results):

Comments: We have not surveyed for this disease but have received no reports of it being found here. We know little of the relative susceptibility of the various Cornus species. C. florida is native only to York County (extreme southern Maine) but other species of Cornus do occur statewide.

ME

MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Abies balsamea (Plantation)

Damage/Pest:

Common Name: Fir Fireweed Rust

Scientific Name: Pucciniastrum epilobii

Survey:

Method(s) Used: Point survey

Total Area Surveyed: 30 A.

Present Condition:

Area (total acres): Undefined

Location (indicate on map): Statewide, worst in Aroostook County

Severity (include areas of moderate and heavy defoliation or infection; define classes): Trace to moderate (1-69% of needles affected)

Losses (include areas of tree mortality; also volume and/or $ estimates): $10,000 - value of Christmas trees rendered unsaleable in 1991.

Trend:

Past to Present: Variable

Future: Variable

Control Projects (method, material, acres, cost, results):

Comments:

ME

MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Eastern & European Larch

Spruce/Fir

Damage/Pest:

Common Name: European Larch Canker

Scientific Name: Lachnellula willkommii

Survey:

Method(s) Used: Visual survey of designated areas of Larch looking for cankers.

Total Area Surveyed: 100 acres approx. in 1991

Present Condition:

Area (total acres): 6,500 acres (approx.)

Location (indicate on map): Knox, Lincoln, Waldo, & Washington counties partially.

Severity (include areas of moderate and heavy defoliation or infection; define classes): At the two epicenters, Cutler - Jonesboro & Friendship, infestation is heavy, light to moderate elsewhere.

Losses (include areas of tree mortality; also volume and/or $ estimates): No mature tree loss has been observed, only sapling & pole size trees. Volume estimates not available.

Trend:

Past to Present: Since 1985 the area has remained constant with no increase.

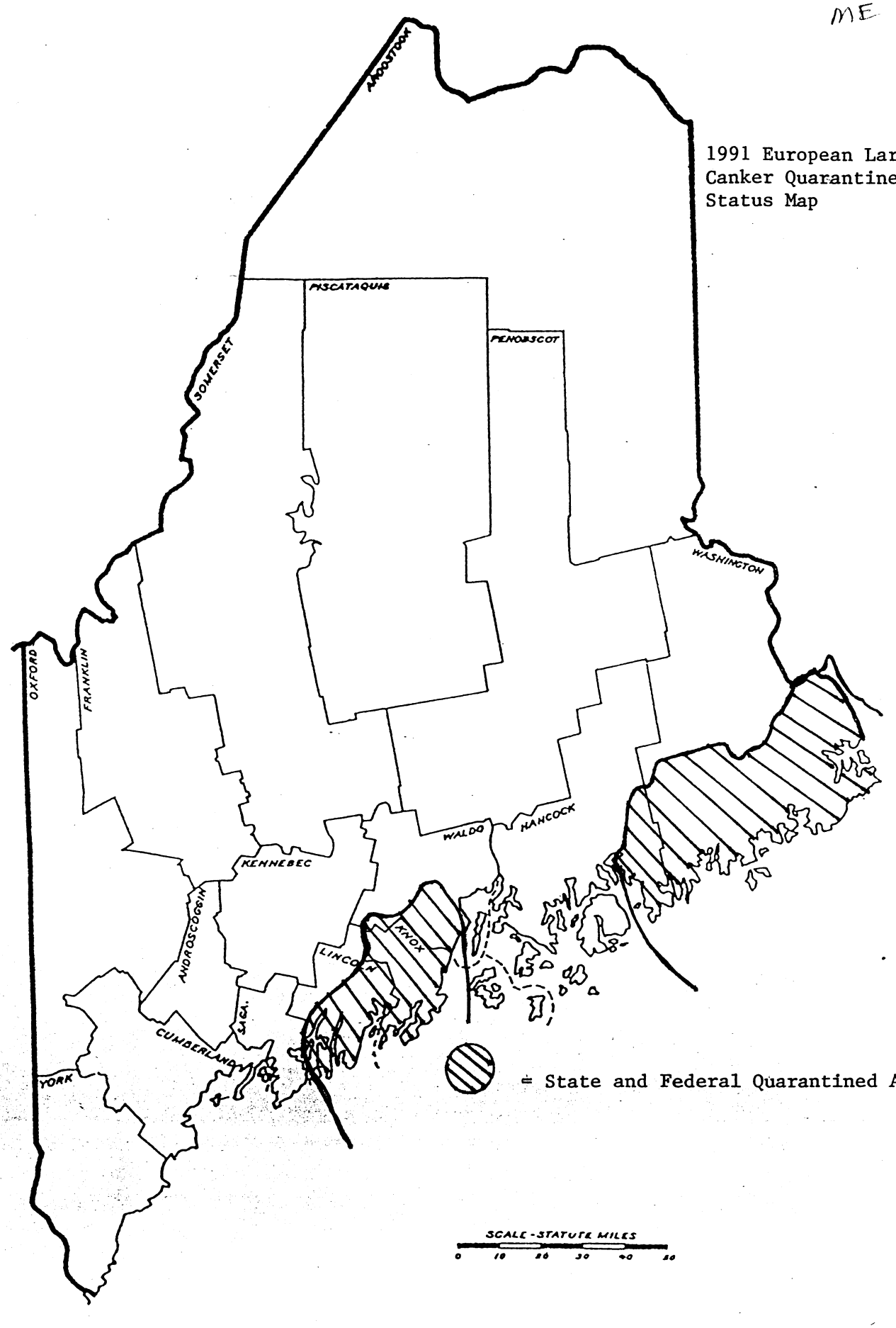
Future: No major increase in size foreseen. Area is expected to remain s the same

Control Projects (method, material, acres, cost, results): State and Federal Quarantine regulations are in effect and are being enforced. Survey done as time and manpower permits.

Comments: 6 Larch utilizers are under compliance agreement to receive wood (larch) from the quarantined area.

MAINE

ME


1991 European Larch
Canker Quarantine
Status Map
AROOSTOOK
PISCATAQUIS
PENOBSCOT
SOMERSET
WASHINGTON
OXFORD
FRANKLIN
WALDO
HANCOCK
KENNEBEC
ANDROSCOGGIN
KNOX
LINCOLN
SAG.
CUMBERLAND
YORK
= State and Federal Quarantined Area
SCALE - STATUTE MILES
0 10 20 30 40 50

ME

MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Abies balsamea (plantation)
Abies fraseri (plantation)

Damage/Pest:

Common Name: Fir Root Rot

Scientific Name: Causal fungus not identified

Survey:

Method(s) Used: Point survey

Total Area Surveyed: 55 A.

Present Condition:

Area (total acres): 500

Location (indicate on map):

Severity (include areas of moderate and heavy defoliation or infection; define classes):
180 A. Trace (1-5% of trees dead or dying)
90 A. Light (6-29% of trees dead or dying)
180 A. Moderate (30-69% of trees dead or dying)
50 A. Severe (70-100% of trees dead or dying)

Losses (include areas of tree mortality; also volume and/or $ estimates):
$50,000 to Christmas tree industry annually

Trend:

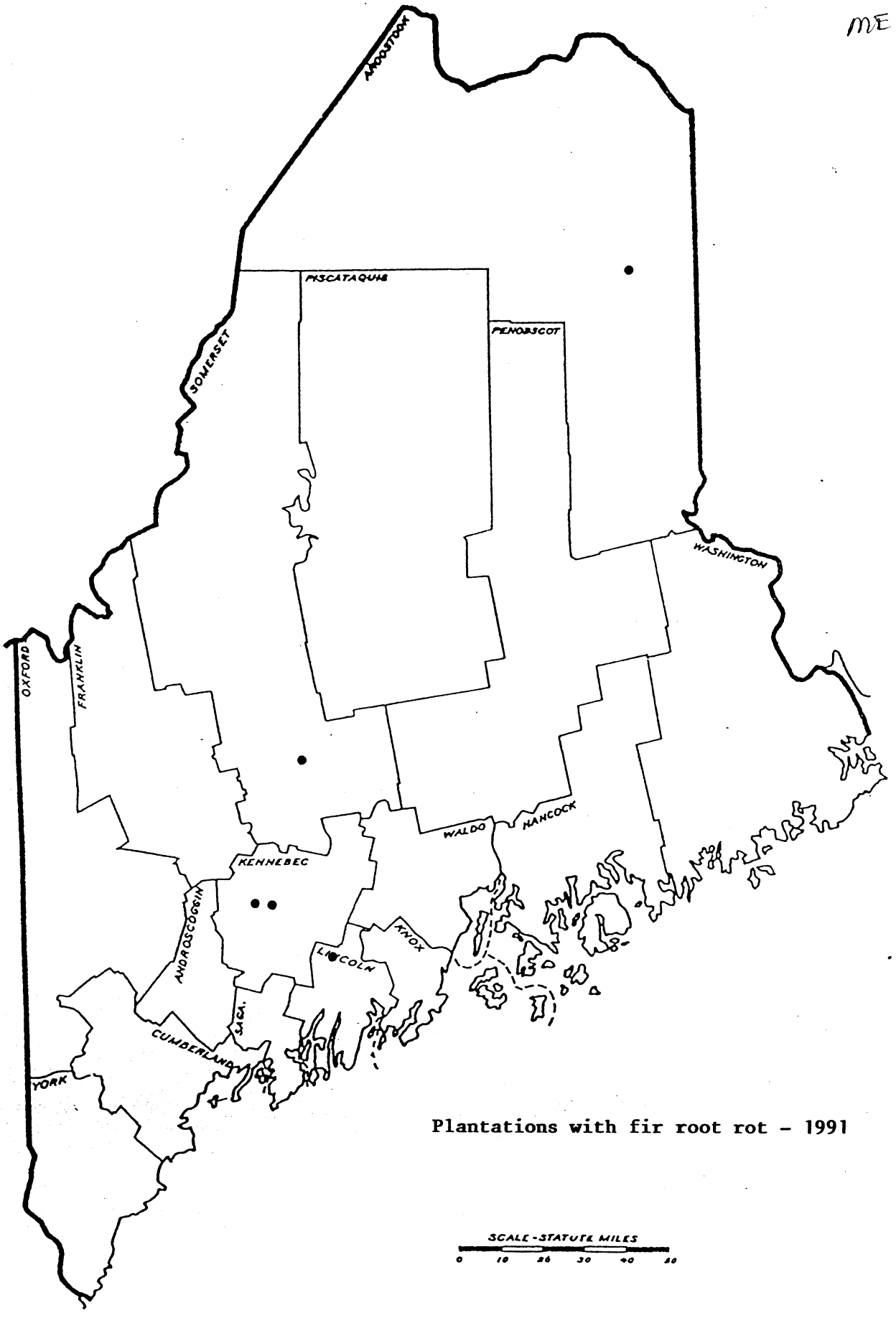
Past to Present: Increasing

Future: Decreasing, as growers learn to avoid planting in wet areas.

Control Projects (method, material, acres, cost, results):

Comments:

MAINE


ME
AROOSTOOK
PISCATAQUIS
PENOBSCOT
SOMERSET
WASHINGTON
OXFORD
FRANKLIN
WALDO
HANCOCK
KENNEBEC
ANDROSCOGGIN
KNOX
LINCOLN
SAG.
CUMBERLAND
YORK
Plantations with fir root rot - 1991
SCALE - STATUTE MILES
0 10 20 30 40 50

ME

MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Quercus rubra, Fagus grandifolia (Oak/Pine)
Abies balsamea (Plantation/Spruce Fir)

Damage/Pest:

Common Name: Frost Damage

Scientific Name:

Survey:

Method(s) Used: Point survey
Aerial survey

Total Area Surveyed: 1,000,000 A.

Present Condition:

Area (total acres): >1,000,000, recovering

Location (indicate on map): Low lying areas statewide

Severity (include areas of moderate and heavy defoliation or infection; define classes): 1,000,000 A. Trace to moderate (1 to 69% of trees affected); 500 A. Severe (70-100% of fir tips killed)

Losses (include areas of tree mortality; also volume and/or $ estimates): $100,000 worth of Christmas trees unsaleable this year.

Trend:

Past to Present: Up

Future: Down

Control Projects (method, material, acres, cost, results):

Comments: In some areas of northwestern Maine, reproduction fir in extreme frost pockets are so severely and repeatedly pruned by frost that they assume a shrublike appearance for many years before resuming normal growth.

ME

MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): All Species (Spruce/Fir; Northern Hardwoods)

Damage/Pest:

Common Name: Hail Injury

Scientific Name:

Survey:

Method(s) Used: Point survey

Total Area Surveyed: 2,000 A.

Present Condition:

Area (total acres): 2,000

Location (indicate on map):

Severity (include areas of moderate and heavy defoliation or infection; define classes): Severe 70-100% of trees damaged

Losses (include areas of tree mortality; also volume and/or $ estimates): Unquantified

Trend:

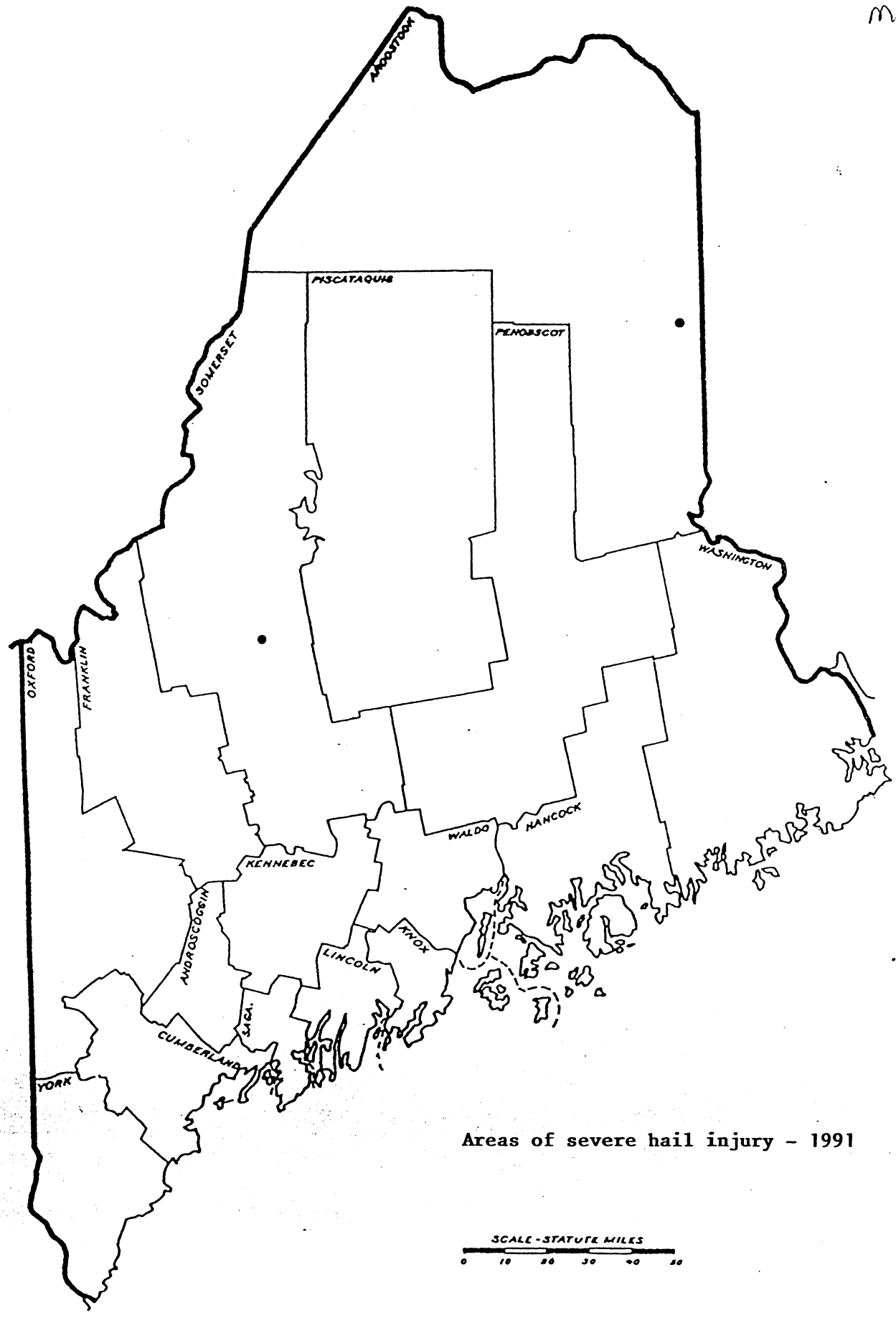
Past to Present: Variable

Future: Variable

Control Projects (method, material, acres, cost, results):

Comments: Injury was especially pronounced on reproduction fir recently released by herbicide application. No hardwood overstory remained there to shield trees from wind driven hail.

MAINE



Areas of severe hail injury - 1991

ME

MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Fraxinus spp., Acer spp., Quercus spp. (Northern Hardwoods)

Damage/Pest:

Common Name: Hardwood Anthracnose

Scientific Name: Discula and related species

Survey:

Method(s) Used: Point survey

Total Area Surveyed: 100 A.

Present Condition:

Area (total acres): 1,000,000

Location (indicate on map): Statewide

Severity (include areas of moderate and heavy defoliation or infection; define classes): 1,000,000 A. Trace to light (1-29% of leaves affected per tree)

Losses (include areas of tree mortality; also volume and/or $ estimates): 0

Trend:

Past to Present: Down

Future: Up in rainy seasons

Control Projects (method, material, acres, cost, results):

Comments: A relatively dry spring and early summer seemed to reduce the incidence of these diseases in 1991.

ME

MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Pinus resinosa (plantation)

Damage/Pest:

Common Name: Red Pine Needle Rust

Scientific Name: Coleosporium asterum

Survey:

Method(s) Used: Point survey

Total Area Surveyed: 300 A.

Present Condition:

Area (total acres): Unknown

Location (indicate on map):

Severity (include areas of moderate and heavy defoliation or infection; define classes): 20 acres Severe (70-100% of needles affected)
280 acres Trace to moderate (1-69% of needles affected)

Losses (include areas of tree mortality; also volume and/or $ estimates):
0

Trend:

Past to Present: Increasing

Future: Decreasing

Control Projects (method, material, acres, cost, results):

Comments:

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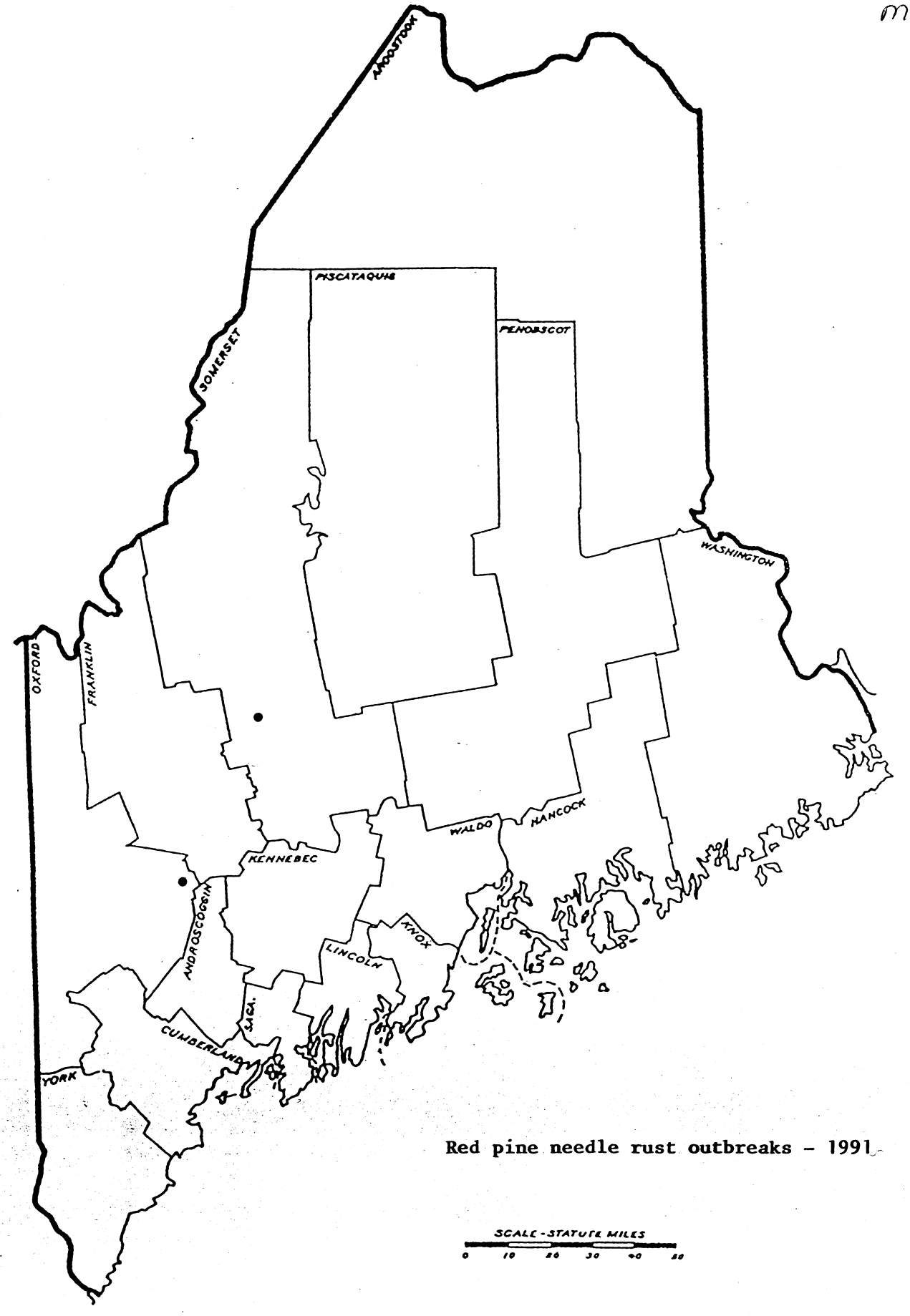

Red pine needle rust outbreaks - 1991

ME

MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): White and Red Pine, Balsam Fir and other softwoods.

Damage/Pest:

Common Name: Pinewood Nematode

Scientific Name: Bursaphelenchus xylophilus

Survey:

Method(s) Used: Cookie samples are taken from bole, mid-crown, & top of suspected trees. Nematodes are extracted using Bergdahl's method.

Total Area Surveyed: None in 1991, statewide previous to 1990.

Present Condition:

Area (total acres): Unknown at this time. Trees at 15 locations have been found infested.

Location (indicate on map): Found in nine counties of the state.

Severity (include areas of moderate and heavy defoliation or infection; define classes): Unknown

Losses (include areas of tree mortality; also volume and/or $ estimates): Unknown

Trend:

Past to Present: Remains static, no survey done in 1990 or 1991.

Future: Further sampling will likely find other areas infested, but potential hazard is considered minimal at this time.

Control Projects (method, material, acres, cost, results): None

Comments: Survey will continue in the future as time and manpower and money will permit.

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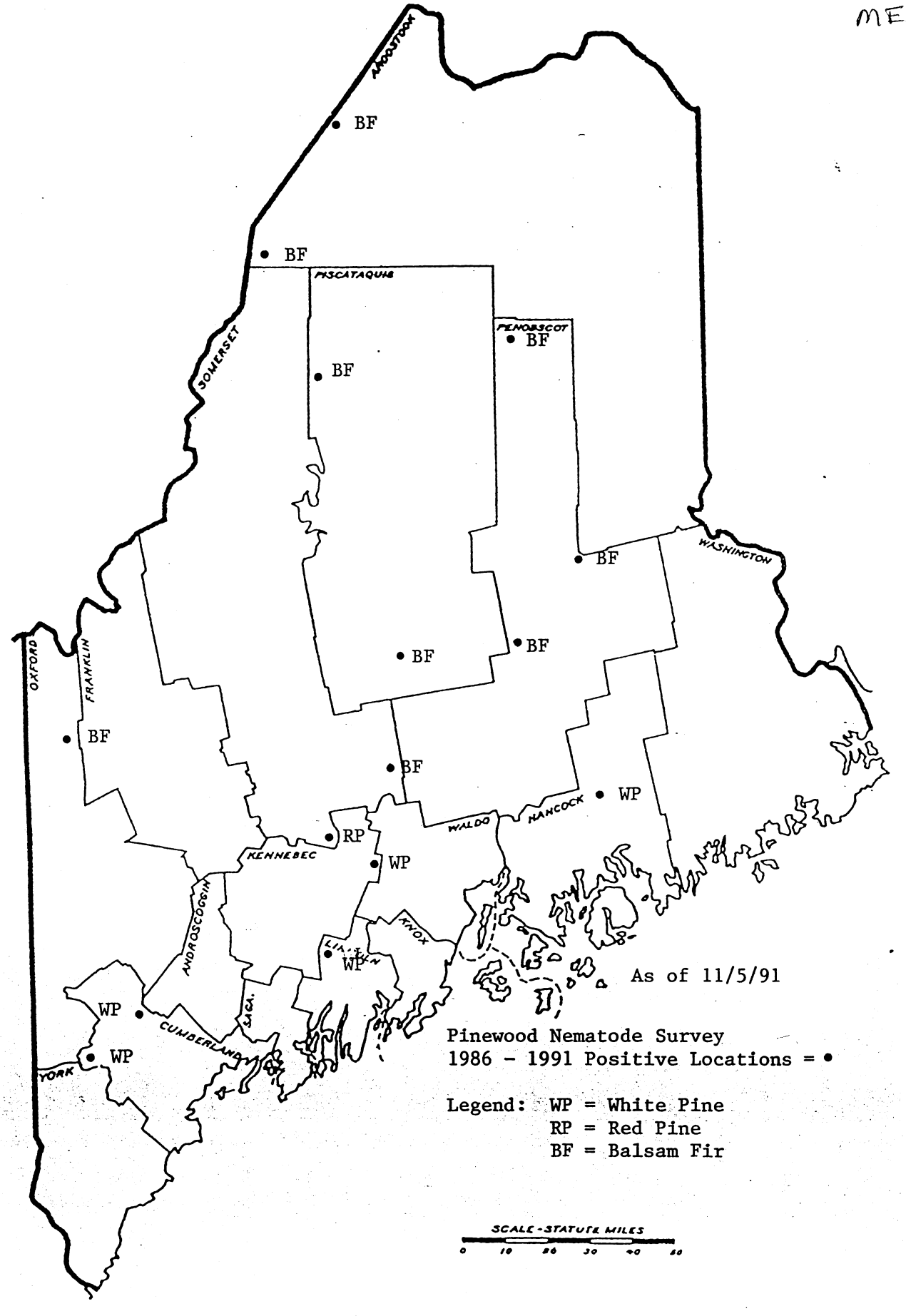

ME
AROOSTOOK
PISCATAQUIS
PENOBSCOT
SOMERSET
WASHINGTON
OXFORD
FRANKLIN
KENNEBEC
WALDO
HANCOCK
ANDROSCOGGIN
KNOX
LINCOLN
CUMBERLAND
YORK
BF
RP
WP
As of 11/5/91
Pinewood Nematode Survey
1986 - 1991 Positive Locations = •
Legend: WP = White Pine
RP = Red Pine
BF = Balsam Fir
SCALE - STATUTE MILES
0 10 20 30 40 50

ME

MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Pinus resinosa, Pinus strobus (Hard Pine)

Damage/Pest:

Common Name: Scleroderris Canker

Scientific Name: Ascocalyx abietina

Survey:

Method(s) Used:

Total Area Surveyed: None

Present Condition:

Area (total acres): 1

Location (indicate on map):

Severity (include areas of moderate and heavy defoliation or infection; define classes): 1 Acre Moderate (30-69% of trees infected)

Losses (include areas of tree mortality; also volume and/or $ estimates): $100

Trend:

Past to Present: Static

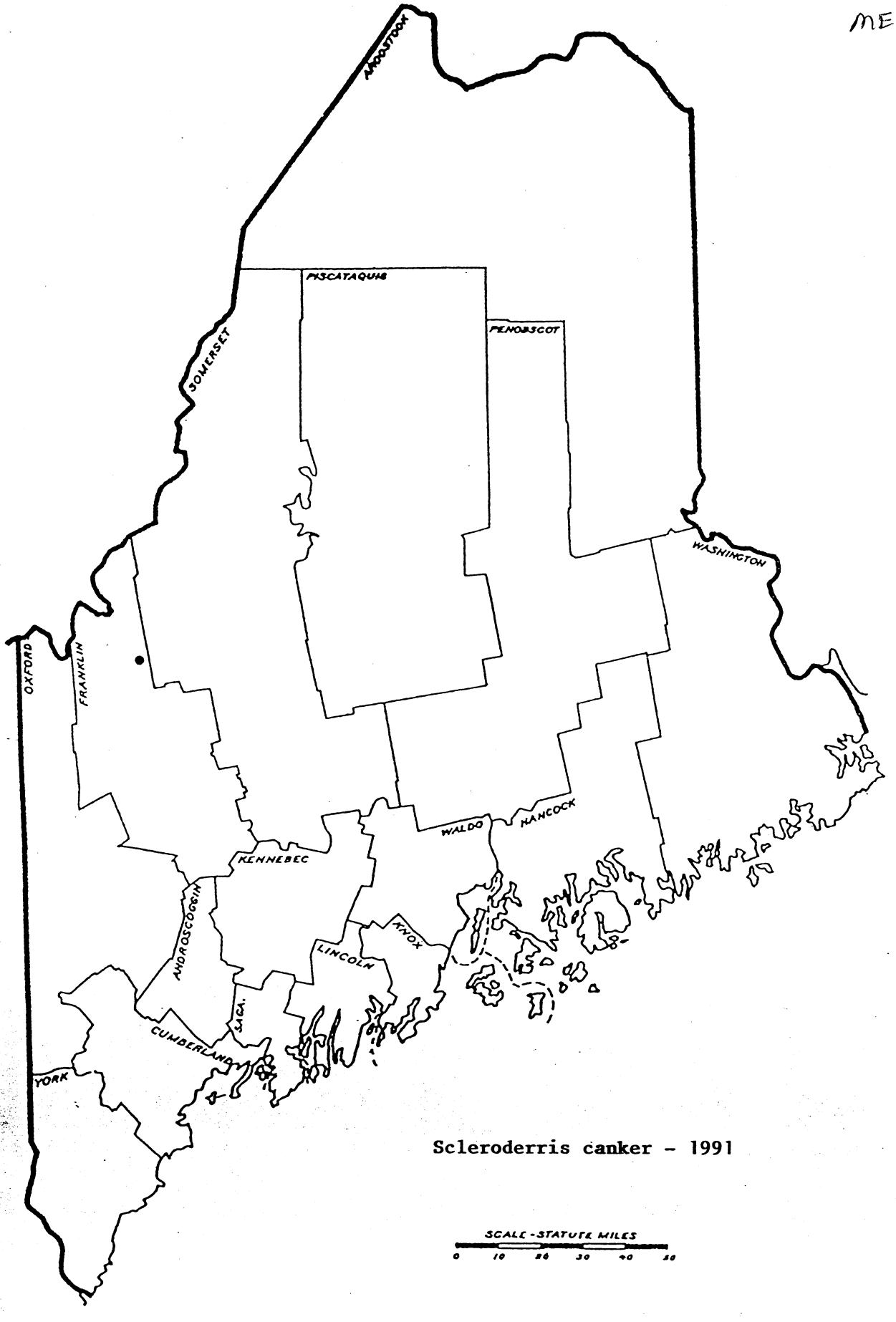
Future: Static

Control Projects (method, material, acres, cost, results):

Comments: This does not appear to be a serious pest in Maine at this time.

MAINE

ME



Scleroderris canker - 1991

ME

MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Balsam Fir

Damage/Pest:

Common Name: Red Fir

Scientific Name: Stilwell's syndrome (associated with Armillariella mellea)

Survey:

Method(s) Used: Aerial and ground surveys to detect newly reddened balsam fir.

Total Area Surveyed: Low density subsamples of 7,000,000 acres of spruce-fir type.

Present Condition:

Area (total acres): Scattered red fir was noted in 1991 but were in very low numbers. No significant areas of red fir concentration were detected.

Location (indicate on map): No mappable concentrations were found.

Severity (include areas of moderate and heavy defoliation or infection; define classes): Mortality to individual balsam fir stems that had been previously defoliated by spruce budworm.

Losses (include areas of tree mortality; also volume and/or $ estimates): By 1991, the percentage of balsam fir affected by Stillwell's syndrome has dropped to very low levels. Even the heaviest areas have an occurrence of less than 1% of the stems and is not significantly different than natural mortality.

Trend: Stable or declining

Past to Present: The number of affected trees has been stable or declined over the past several years. The southern Hancock County area had a higher rate of attack in 1990 (3 to 5%), but this rate dropped sharply in 1991.

Future: The rate of attack has probably stabilized in all of Maine except southern Hancock County and is not likely to change in the future. In Hancock County the level of occurrence may continue to fluctuate for several more years.

Control Projects (method, material, acres, cost, results):

None

Comments: In areas where budworm subsided around 1985, the level of Stillwell's occurrence fluctuated for about 5 years and then stabilized at a very low level (<1%) and this level is not expected to increase in these areas unless a new stress factor, such as the past budworm outbreak, is introduced.

ME

MAINE
1991 PEST CONDITIONS REPORT WORK SHEET

Host Tree(s) (including forest type): Sugar Maple

Damage/Pest:

Common Name: Sugar Maple Decline

Scientific Name:

Survey:

Method(s) Used: North Atlantic Sugar Maple Project Survey

Total Area Surveyed: 9,000 acres

Present Condition:

Area (total Acres): 2,625,800 acres

Location: Western Maine

Severity (include areas of moderate and heavy defoliation or infection; define classes): Less than 10% crown die back in 18 plots maintained to monitor health

Losses (include areas of tree mortality; also volume and/or $ estimates): None

Trend:

Past to Present: Static

Future: Conditions will be monitored

Control Projects - (method, material, acres, cost, results): None required

Comments:

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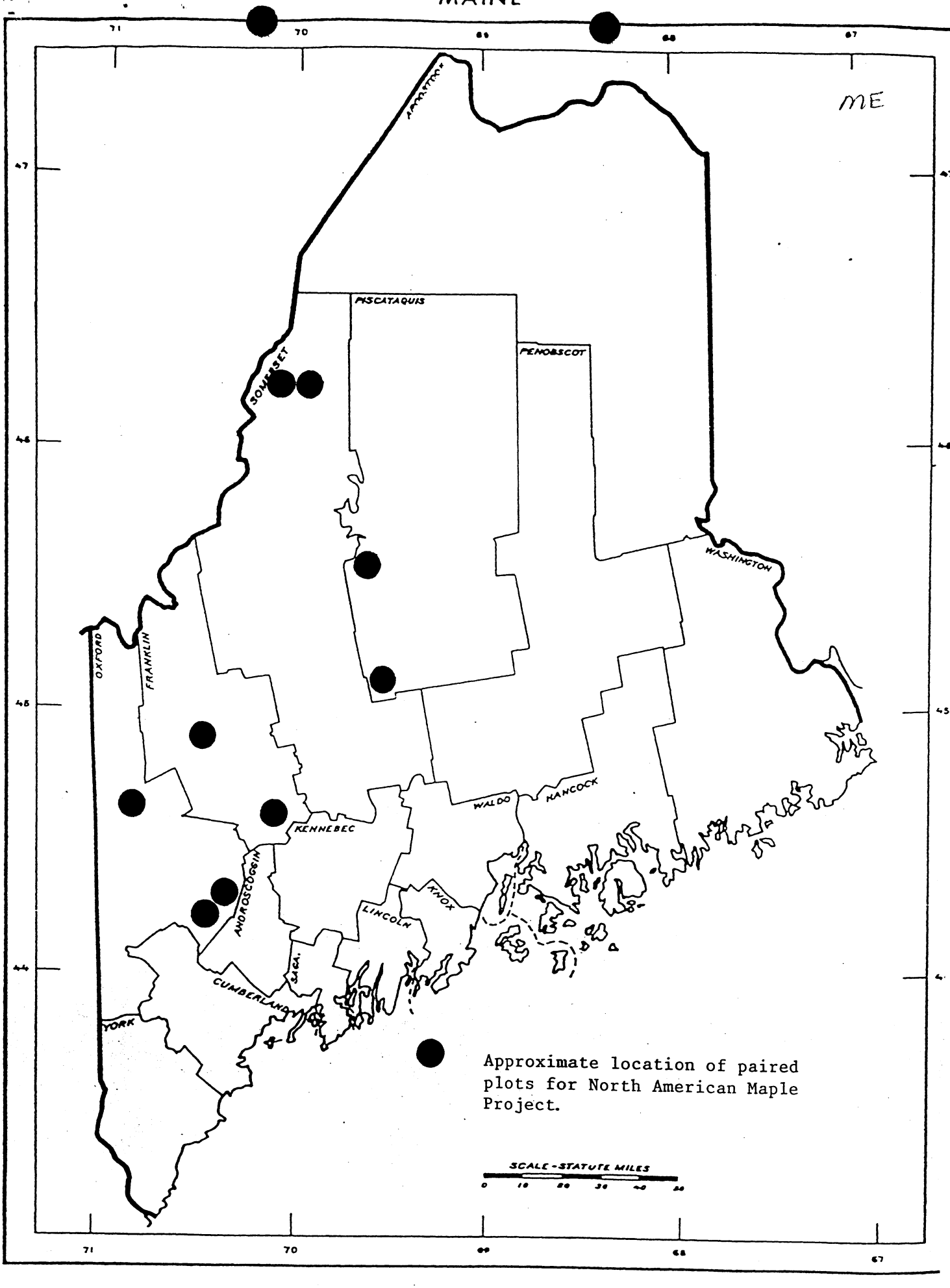

Approximate location of paired plots for North American Maple Project.

ME

MAINE
1991 PEST CONDITIONS REPORT WORK SHEET

Host Tree(s) (including forest type): White Birch - Birch Aspen Group

Damage/Pest:

Common Name: White Birch Decline

Scientific Name:

Survey:

Method(s) Used: Annual survey of white birch crowns within plots.

Total Area Surveyed: 160,000 Acres

Present Condition:

Area (total Acres): 34,300 Acres - Rangeley
49,400 Acres - Washington County

Location: See map

Severity (include areas of moderate and heavy defoliation or infection; define classes): Defoliation was very light throughout the area.

Losses (include areas of tree mortality; also volume and/or $ estimates): 59-66% of the white birch within the plot exhibit top dieback, 3-9% of the white birch have died within the study plots.

Trend:

Past to Present: Tree health as reflected by crown condition improved from 1990.

Future: Unknown

Control Projects - (method, material, acres, cost, results): None, salvage is being conducted.

Comments:

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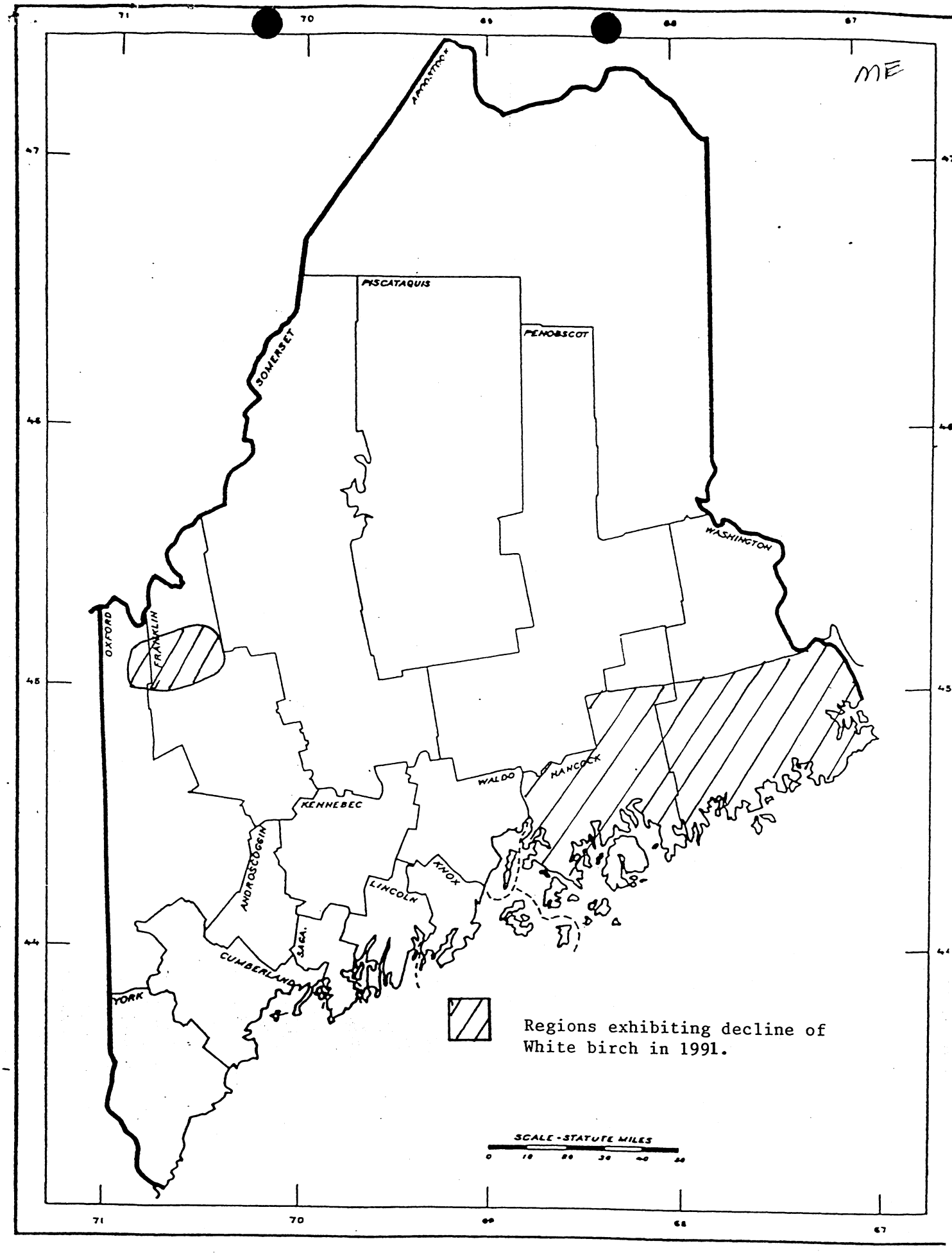
ME
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PISCATAQUIS
PENOBSCOT
SOMERSET
WASHINGTON
OXFORD
FRANKLIN
HANCOCK
WALDO
KENNEBEC
ANDROSCOGGIN
KNOX
LINCOLN
SAG.
CUMBERLAND
YORK
Regions exhibiting decline of White birch in 1991.
SCALE - STATUTE MILES
0 10 20 30 40 50

ME

MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Pinus strobus (White Pine/Red Pine)

Damage/Pest:

Common Name: White Pine Blister Rust

Scientific Name: Cronartium ribicola

Survey:

Method(s) Used: Ground

Total Area Surveyed: 280,000 A.

Present Condition:

Area (total acres): Statewide

Location (indicate on map):

Severity (include areas of moderate and heavy defoliation or infection; define classes): 2,000,000 A. Trace (1-5% tree mortality)
500,000 A. Light (6-29% tree mortality)

Losses (include areas of tree mortality; also volume and/or $ estimates):
$100,000

Trend:

Past to Present: Static

Future: Static

Control Projects (method, material, acres, cost, results): 16,792 A.
Tordon RTU Reduced average tree mortality from about 9.1% to 3.8%

Comments:

ME

MAINE
1991 PEST/DAMAGE CONDITIONS REPORT WORKSHEET

Host Tree(s) (including forest type): Pinus strobus (Plantation)
Abies balsamea (Plantation)
Larix leptolepis (Plantation)
Native Stands (all species)

Damage/Pest:

Common Name: Wind Damage

Scientific Name:

Survey:

Method(s) Used: Point survey

Total Area Surveyed: 200 A.

Present Condition:

Area (total acres): 17,000,000

Location (indicate on map):

Severity (include areas of moderate and heavy defoliation or infection; define classes): 17,000,000 A. Trace to light (0-29% succulent new shoots twisted & broken, or 0-29% of trees felled).

Losses (include areas of tree mortality; also volume and/or $ estimates): >$1,000,000

Trend:

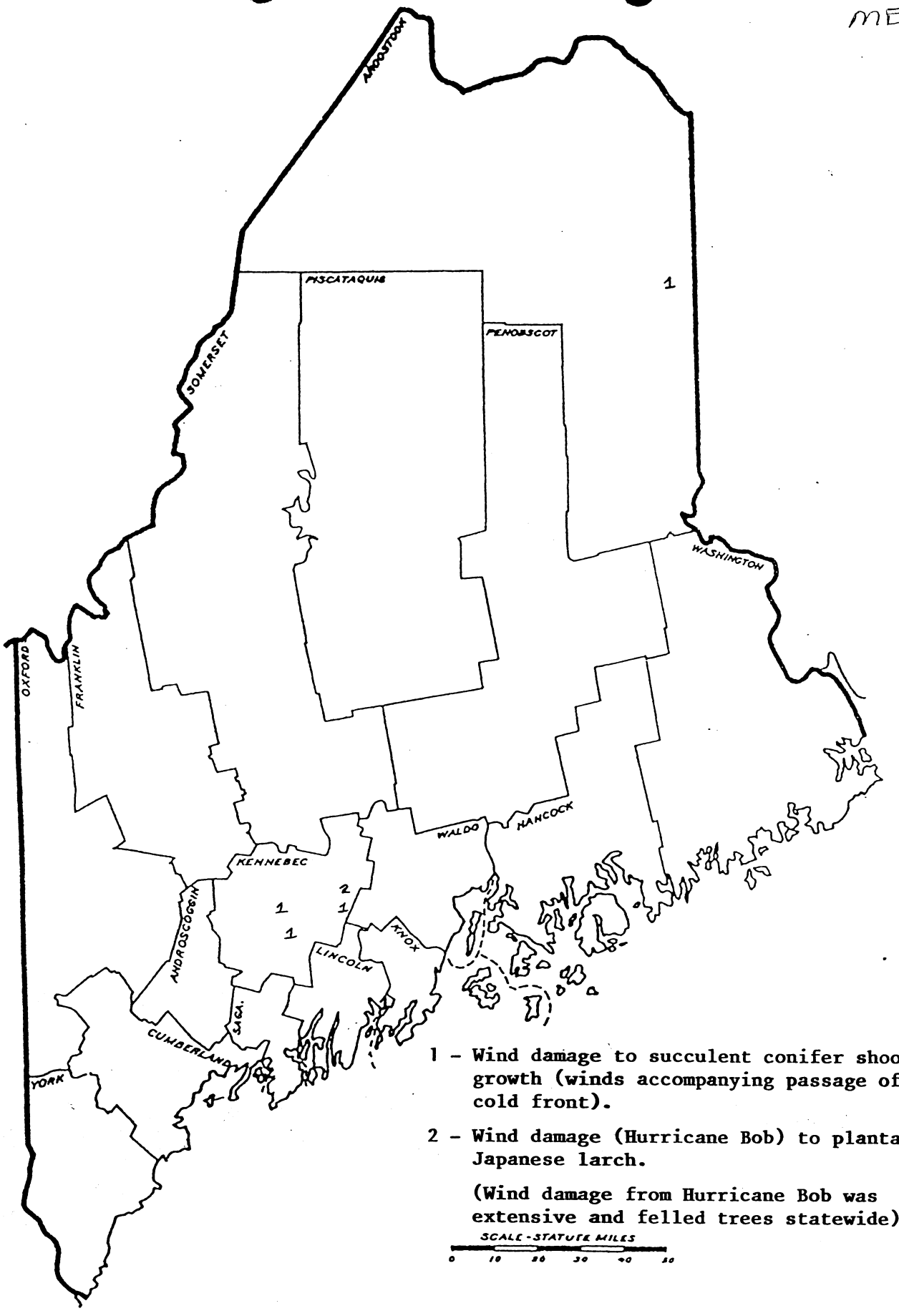
Past to Present: Increasing

Future: Uncertain

Control Projects (method, material, acres, cost, results):

Comments: Wind damage to balsam fir and white pine growing in plantations was common statewide but most damage was limited to twisted and broken shoot growth. This occurred with the passage of a strong cold front in late June. Hurricane Bob in mid-August felled many forest trees statewide and caused larch in certain plantations to tilt permanently in a downwind direction.

ME


AROOSTOOK
PISCATAQUIS
PENOBSCOT
SOMERSET
WASHINGTON
OXFORD
FRANKLIN
WALDO
HANCOCK
KENNEBEC
ANDROSCOGGIN
KNOX
LINCOLN
SAG.
CUMBERLAND
YORK
1
2
1
1
1
1 - Wind damage to succulent conifer shoot growth (winds accompanying passage of cold front).
2 - Wind damage (Hurricane Bob) to plantation Japanese larch.
(Wind damage from Hurricane Bob was extensive and felled trees statewide)
SCALE - STATUTE MILES
0 10 20 30 40 50